

P
A GENERAL PLAN

for
FORT SASKATCHEWAN



EDMONTON DISTRICT PLANNING COMMISSION

EDMONTON DISTRICT PLANNING COMMISSION

1953-54

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STAFF

Director - - - - -	L. Gertler, M.A. (Econ.)
Planning Technician - - - - -	R. N. Giffen, M.Sc. (Ag.)
Planning Technician - - - - -	F. Marlyn, B.Arch.
Planning Technician - - - - -	D. Makale
Planning Draughtsman - - - - -	A. L. Pheiffer
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A General Plan For
FORT SASKATCHEWAN

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INTRODUCTION

In the early summer of 1952 the Council of Fort Saskatchewan adopted an **Interim Development Bylaw**. This bylaw authorizes Council to appoint an Interim Development Board, and states that "the Board shall only issue Development Permits in respect of such development as in its opinion will be consistent with the proposed General Plan."

"General Plan," as defined in the **Town and Rural Planning Act** includes all those measures which make for the "orderly, economic and convenient" development of the municipality. In this direction the Board, with technical assistance provided by the Edmonton District Planning Commission, has already taken the following constructive steps: **to provide for residential growth**, a new subdivision (Ross Creek) comprising some thirty-five acres has been planned in detail and registered with the consent of all the constituent land owners; **to provide for industrial growth**, a fourteen-acre area has been designed for light industrial use on town-owned property near the C.N.R. main line; a residential building code and fire zone regulations for the central business district have been adopted; tentative limits of the central commercial and residential zones have been defined and appropriate site regulations enforced; and meetings have been held with neighboring municipalities to arrange for the proper co-ordination of developments within and beyond the town limits. These measures, considered altogether, add up to the "evolving general plan" for the Town of Fort Saskatchewan. But they are only a beginning.

This planning report represents an attempt to establish the town's long-term planning on a sound foundation. For this reason, considerable emphasis is placed on the economic factors—agricultural and industrial—which will shape the community's future. And insofar as this analysis has yielded definite conclusions, we have attempted to spell out the prospects in terms of the land and facilities that will be required in the years ahead.

Throughout the preparation of the report, close contact has been maintained with the Interim Development Board, and, under the pressure of day-to-day needs, some of the proposals have, after due consideration, been adopted. But in the main, the recommendations of the report are recommendations of the technical staff to the Interim Development Board of Fort Saskatchewan, and through that agency, to Council. They are in no sense final or official. It is hoped, however, that the report will provide the basis, after public discussion and criticism, of a "general plan" for Fort Saskatchewan.

THE AGRICULTURAL BASE

History of Fort Saskatchewan's Growth

Fort Saskatchewan was incorporated as a village in 1898 and as a town in 1904. The population growth is shown on the accompanying graph. During the first twenty years of the present century the town grew quite rapidly. The years of greatest optimism were 1910 and 1911 when forecasts of the population reaching 10,000 in five years were freely given. This enthusiasm was caused by the belief that the Canadian Northern Railroad would pass through Fort Saskatchewan and by-pass Edmonton on its way to the coast. This did not happen and Fort Saskatchewan's growth remained stationary for 30 years. In some instances it may have fallen back. However, 1951 ushered in the new era. The establishment of the Sherritt-Gordon nickel refinery has re-awakened the town to its possibilities.

Analysis of Dominant Past Growth Factors

The evolution of Fort Saskatchewan from a police post to a town was closely tied to the settlement of the rich farm land in the surrounding area.

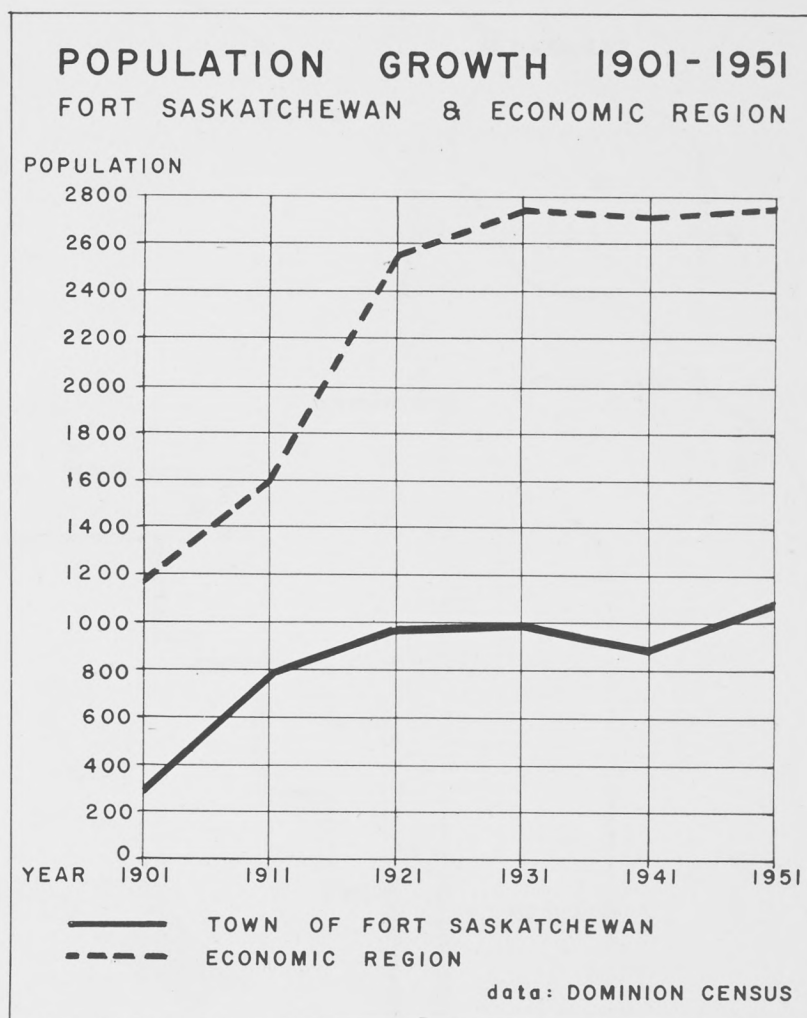
After the coming of the railway in 1905 the town assumed the position of a marketing centre for the district farmers. The continued growth until 1921 may be assumed, for the most part, to be the result of this demand for a market place. Employment within the town was totally in the commercial service occupations. There was no industry. In 1915, the Provincial Government built a modern penal institution on the site of the old police barracks. The need for maintenance men and guards provided an increase in the employment opportunities for the townspeople. Although the settlement of the farmland of the district was not complete until approximately 1926, the town population was static from 1921 to 1926. Probably the existing commercial establishments within the town were adequate to service the increase in farm population. Improvement in the transportation facilities tended to increase the traffic to Edmonton . . . to the detriment of Fort Saskatchewan's growth.

Since 1926, the fluctuations of population in the town and in the rural area surrounding it have coincided. However, there was a noticeable decrease in town population during the 1930's reflecting the reduction of buying power of the farm population.

Some indication of the town's dependence upon the rural area for existence is given in the Table of the occupational structure for 1951 which was compiled from data of the population survey.

TABLE 1—Employment Structure of Fort Saskatchewan—1951

Occupation	Percent of Total Employed
Farming	3.5
Industry	0
Construction	7.6
Civil Service	4.8
Transport	3.0
Professional	8.9
Commercial	46.8
Total of Service Occupations	74.6%
Institutional Occupations	25.4%
Total	100.0%



Defining the Town's Economic Region

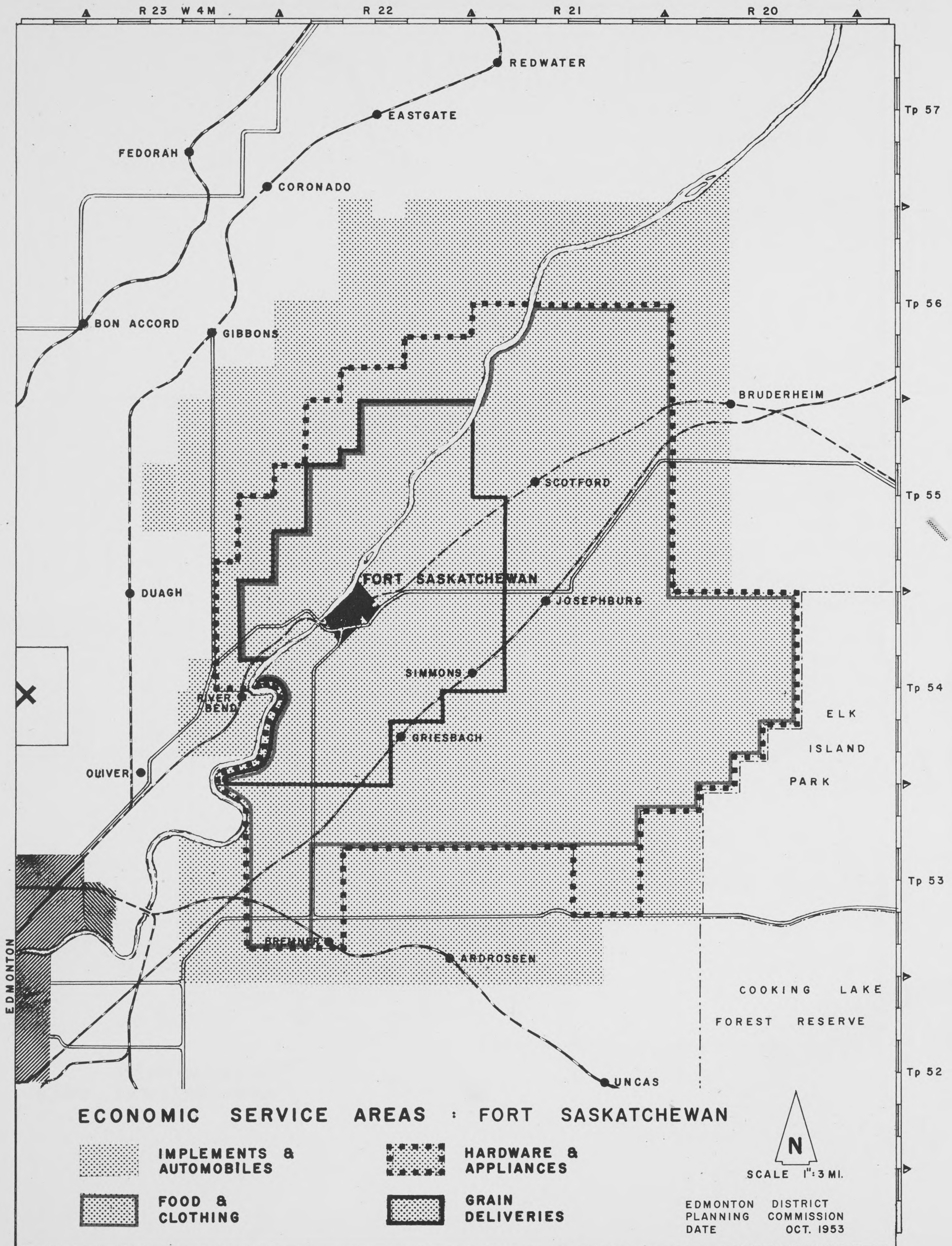
Market Area Analysis

The extent and density of the market area have been determined by survey of the major businesses, namely food and clothing, hardware and appliances, farm machinery and automobiles, and grain elevators. The individual business men were interviewed and the locations of their customers were pinpointed on the district maps.

The limits of the areas for each of the sections are shown on the accompanying map of **Economic Service Areas**. The grain delivery area is shown to be the most restricted, while the machinery and automobile area shows the widest scope. The main food and clothing, hardware and appliance areas are shown as intermediate in extent and coinciding fairly closely one with the other.

Where the three sections, food and clothing, hardware and appliances, and machinery and automobiles, are contiguous, the area enclosed would suggest continuous patronage of the town businesses because of demands for both durable and non-durable goods. Beyond this area, the indicated demands are for durable goods only. This would suggest an area of intermittent patronage of the businesses in Fort Saskatchewan.

The contributing areas, as defined on the maps, show a definite overbalance to the south and east. Factors natural and man-devised have operated to cause this unnatural condition. The lack of proper bridging of the North Saskatchewan River acts as a barrier against the normal spread of the serviced area to the north and west. The position and direction of the major highways seem to exert an influence, particularly Highway 16, which fairly consistently forms the southern boundary of the contributing area and acts as a by-pass funneling customers, who would normally shop at the "Fort," into Edmonton. Elk Island Park acts as a barrier on the eastern edge.



% OF CROP ACREAGE SOWN TO:-			
BARLEY	OATS	WHEAT	
63.7	21.8	14.5	

GRAIN

% OF CROP ACREAGE SOWN TO:-			
BARLEY	OATS	WHEAT	
52	26	22	

GRAIN

DAIRYING

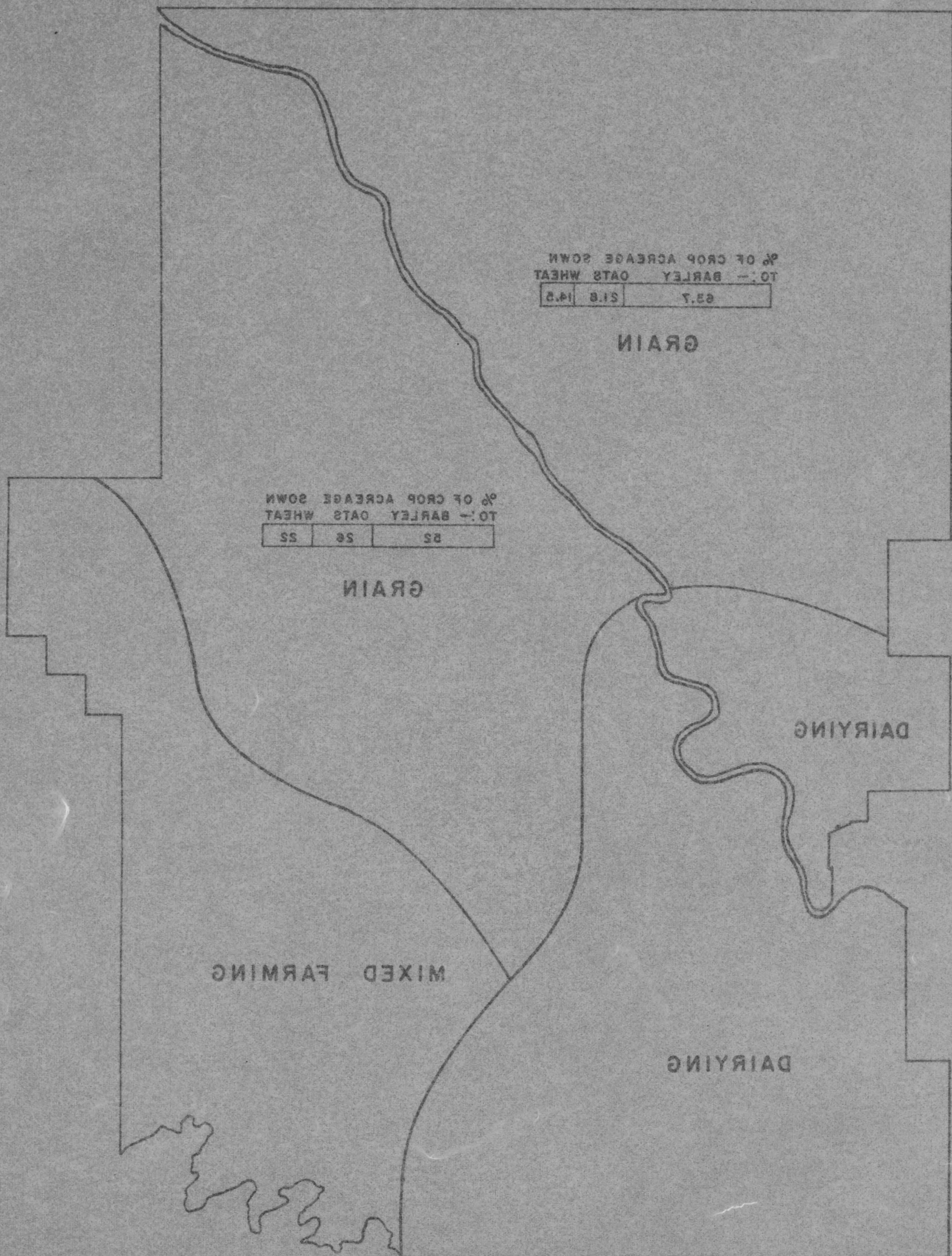
MIXED FARMING

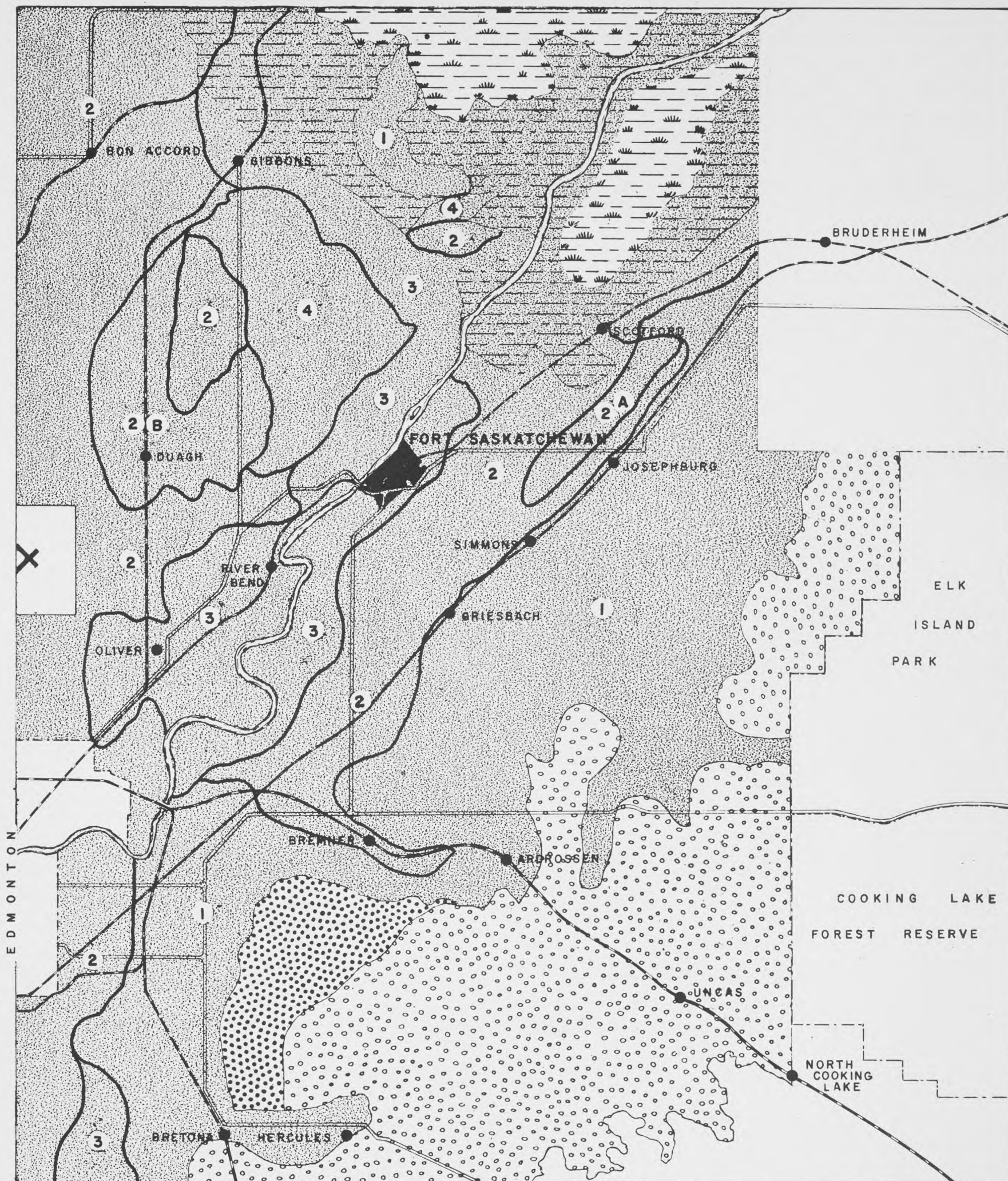
DAIRYING

PREDOMINANT
AGRICULTURAL USES

1952 DATA

PREDOMINANT
AGRICULTURAL USES
1952 DATA





SOILS MAP : FORT SASKATCHEWAN AREA

	SAND & BOG		GREY WOODED		GREY-BLACK
	BLACK				
	1 GLACIAL TILL		3 GLACIAL ALLUVIAL (river laid)		
	2 GLACIAL LACUSTRINE (lake laid)		4 BEDROCK		
	2A GLEIZOLIC (poorly drained)		AEOLIAN ALLUVIAL (wind drifted)		
	2B SOLONETZIC (accumulated salts)				

N
SCALE 1" = 3 MI.

EDMONTON DISTRICT
PLANNING COMMISSION
DATE NOV. 1953

The arrival of industry in Fort Saskatchewan and its attendant increase in town population should act to improve the status of the town, supply more and better services for the townspeople, and indirectly provide incentive for the rural population to frequent the town. If the services are improved to an extent where the rural people can compare them favorably with those offered by Edmonton, then the tendency will be for increased and wider patronage of the town businesses. Ease of traffic circulation and of parking creates a preference for the town.

Predominant Crops and Agricultural Activities

The Fort Saskatchewan farmland compares favorably with that of all other farming areas in the province. The black soil zone, which covers most of the area, varies from level to gently rolling, and is particularly suited to grain farming. In recent years, the emphasis in this area has been on the growing of coarse grains rather than wheat, due mainly to market factors, particularly the domestic demand for good malting barley. The story is told, in relation to soils, on the map overlay showing the **Predominant Agricultural Uses** within the area. Livestock raising is limited in this zone. In the southwestern part of the economic region there are a number of large dairy farms, producing for the Edmonton market.

As is shown on the overlay map, mixed farming is the predominant enterprise in the grey-wooded zone at the present time. The rougher topography presents a problem in farm management. A greater amount of land is unsuitable for cultivation and must be left as pasture or in bush. The type of soil demands enrichment which can only be supplied by growing forage crops. Therefore, to obtain the greatest amount of land utilization in the grey-wooded zone, a farmer must select an enterprise which features a large amount of livestock.

Agricultural Possibilities of the Economic Region

The present farming community has been firmly established for many years. The families of the original settlers make up a good proportion of the farming population. The concept, practice and "way of life" of farming are well established. It may be assumed that a change from grain-growing to dairying or mixed farming in the general black soil zone is not likely as long as a normal profit is made under the present farm practice. However, there is the possibility that in the future the soil will require certain restorative practices which will necessitate a change to a more balanced enterprise.

In the grey-wooded soil zone, farm settlement has been more recent, and the agricultural pattern is, consequently, still evolving. A shift from mixed farming to dairying could arise out of:

- (a) the natural emphasis on pasture and forage crops.
- (b) the flight of dairy farmers from the high land values and instability of the areas close to the big city.

But this possibility is still speculative.

Certain basic characteristics of soil and climate help to determine the type of farming which is best suited for a specific area. Any change must necessarily be a variant of this suitable enterprise to be successful.

Agricultural Trends and Population Changes

To assess the population impact of expected agricultural changes upon the town's growth, we must first know how many country people are required to support one town person. Within the economic region defined by the plan, some 400 to 440 families, or 1,760 people (440 x 4) regularly patronize town businesses, and so constitute the supporting rural population. The town population, before the nickel refinery, was 1,076. Of this total we estimate that the 56 jail employees account, directly and indirectly, for 280 people, or, 26% of the population. It is the remaining 796 people who are supported by the 1,760 rural people who patronize the town. Thus the ratio of town to country population is 1 to 2.2, that is, it takes 2.2 people in the country to support 1 person in town.

The future population impact of country upon town will result from two possibilities:

- (1) The attraction by town business, with improvement in facilities, of a greater proportion of the potential business within the economic region, and
- (2) A shift to a more labor-intensive type of farming in the grey-wooded soil area in the southeastern part of the economic region.

Within the economic region of the town, there are an estimated 648 farmsteads representing a population of 2,592. The effective supporting population we found to be 1,760. The difference between these figures—832—represents the unused business potential of the region as presently defined. Realization of this customer potential would, on the basis of the established country-town ratio of 2.2 to 1, increase town population by 378.

The population effect of a shift from mixed farming to whole milk production in the grey-wooded soil area, is evident in the comparative "man equivalents" (the number of men required per average farm), of the different types of farm enterprise within the Edmonton area, which are as follows:

TABLE 2—Man Equivalents, Farm Enterprises, Central Edmonton Area

Type of Farms	Average Man Equivalents
Mixed Farms	1.6
Hog Farms	2.0
Beef Farms	1.5
Poultry	1.3
Grain	1.2
Churning Cream	1.6
Whole Milk	2.2

Note: Source—"Dairy Cost and Farm Management Studies," Department of Agriculture.

Whole milk production requires one more man per farm than mixed farming. Thus, if the 40 or so grey-wooded farms convert to dairying, rural population will increase by 40 men, or, considering families, by 160 people. Applying the country-town ratio of 2.2 to 1 suggests a resulting increase of 72 in the town population.

The two factors combined—the full use of the region's business potential, and a shift from mixed farming to dairying—would increase the town's population by $378 + 72 = 450$. The population forecast, however, will not take agricultural factors into account because of the difficulty of determining the pace of the anticipated tendencies, and of the population effects in country and town of further farm mechanization.

THE INDUSTRIAL BASE AND POPULATION FORECAST

Direct and Indirect Effects of the Nickel Refinery

Population figures show that Fort Saskatchewan as a "market centre," servicing and supplying an area of some 648 farmsteads occupying some 205,440 acres of land can expect only a gradual and limited growth. All signs point to an entirely new stimulus to the town's development. The "shot-in-the-arm" provided by the \$19,000,000 nickel refinery-ammonia plant is already evident in the construction, within two years, of 100 homes, one hotel, one business block and a new school, making a total investment of \$1,750,000. If the town's general plan is to be cut to the cloth of its new economic future, it is important to know both the conditions which might either attract or retard the development of industry.



Sherritt-Gordon Metal Refinery and Ammonia Plant—Fort Saskatchewan Area (M.D. of Strathcona).

The starting point is the present and the conditions behind the establishment of the new plant. One can trace a direct link between the unique Sherritt-Gordon process of refining nickel concentrates by ammonia leaching and the choice of Fort Saskatchewan as the site of the plant. The determining factor is natural gas—the basis for an abundant and cheap supply of ammonia for (a) the refinery process and (b) the by-production of ammonium sulphate fertilizer. Estimated gas deliveries from field to plant will be, initially, at an average daily rate of about 7 million cubic feet, or 2.8 billion cubic feet per year. The reserves of the Fort Saskatchewan field, one mile south of the refinery, are estimated at 100 billion cubic feet (see **Gas Well** map). Amongst alternative Alberta centres, the balance was tipped in favor of Fort Saskatchewan because it satisfied three other requirements:

- (1) the Canadian National Railway main line connecting with the company's Lynn Lake Mine in Northern Manitoba (see accompanying map),
- (2) large supplies of water available from the North Saskatchewan River, and
- (3) the Company's preference for a small town with its lower land costs and friendly way of life.

Proximity to the facilities of Edmonton—to wholesale supply firms and machine shops—was a contributing factor. Thus the forces which brought the new plant may be summed up as follows:

Natural Gas	+	Canadian National Rlwy. Line	+	Abundant Water	+	Preference for Small Town	+	Proximity to Edmonton	=	Fort Saskatchewan
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It is quite obvious that from now on the future of the refinery and of the town will be closely linked. If we discover the possibilities of expansion in the refinery we may have an important clue to the future growth of the town. To do this we need first to determine two relationships—

- (1) that between the number of industrial employees and the number of people—women and children—directly supported by those employees, and

- (2) that between the number of industrial employees and the number of people—men, women and children—supported by non-industrial activities—retail, wholesale, financial, professional and so on. These relationships may be expressed in the following ratio:

Industrial Employees	to	Employees and Families	and to	Non-Industrial Pop.
E.	to	E. and F.	and to	N.I.
250	to	?	and to	?

The sum of (E. and F.) plus (N.I.) will give us the total population generated by industrial development. Let us see how far we can determine these relationships in the Town of Fort Saskatchewan.

We are informed that by July, 1954, the Sherritt-Gordon Company will have a total employment of 250. Thus our ratio will look like this:

E.	to	E. and F.	and to	N.I.
250	to	?	and to	?

The direct population effect of the 250 employees will be determined by the following information:

Percentage of employees who are "male heads of families" - - - - - 90% (Sherritt-Gordon Co.)
Average Family Size - - - - - 3.7 (Census, Canada, 1951)

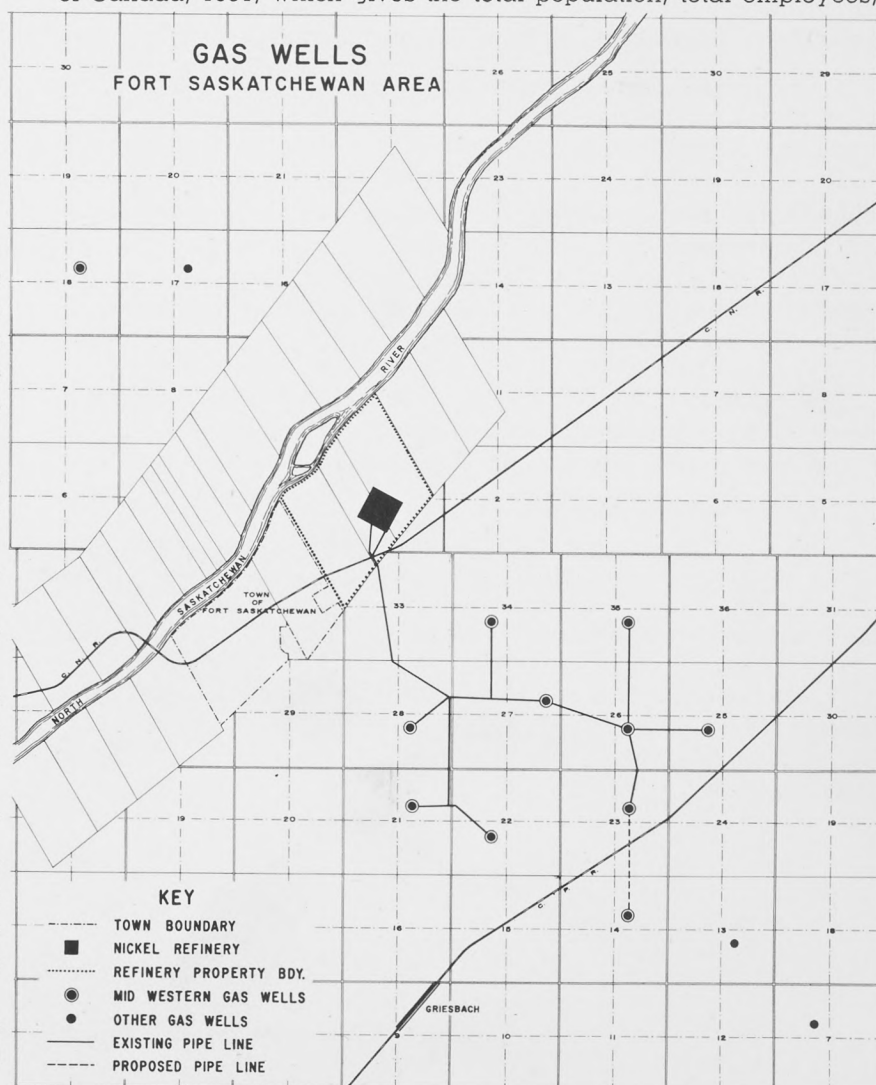
Therefore:

Male Heads of Families	×	Average Family Size	+	Single Employees	=	Direct Population Increase
90% of 250, or 225	×	3.7	+	25	=	857

Now our ratio can advance another step:

E.	to	E. and F.	and to	N.I.
250	to	857	and to	?
1	to	3.4		

Determining the indirect population—the storekeepers, doctors, teachers, bank employees, etc.—is a little more difficult. We are fortunate, however, in having the information of the Ninth Census of Canada, 1951, which gives the total population, total employees,



employees in manufacturing and employees in non-manufacturing enterprises, for all Canadian towns and cities with population in excess of 1,000. From this we can at least discover what the ratio of E. to N.I. has been in communities mainly dependent, for growth, on primary manufacturing—as Fort Saskatchewan will be from now on. For example, the ratio of industrial employees to non-industrial population in the communities of Trail, B.C., Port Colborne, Ontario, and Arvida, Quebec, are respectively 1 to 5.2, 1 to 5.5, and 1 to 5. Or, if we apply the Trail and Arvida average family sizes of 3.3 and 4.2, this ratio means that for every ten industrial workers from 12 to 16 doctors, lawyers, accountants, sales clerks, waitresses, construction workers, teachers, stenographers, etc., are required—which, if you think of it, is not an unreasonable proposition. Trail, Port Colborne and Arvida are relevant examples because in all, primary manufacturing—in the first, lead, zinc and fertilizer, in the second, nickel, and in the third, aluminum—is the sole basis of livelihood and population growth. The ratio of employees to non-industrial population then will not be much affected by other growth factors such as service to an agricultural region, and consequently will give a true picture of the indirect population effect of industrial employment. On this basis we will assume the ratio between E. to N.I. to be 1 to 5. Thus our ratio can be completed as follows:

Industrial Employees	to	Employees and Families	and to	Non-Industrial Pop.
E.	to	E. and F.	and to	N.I.
250	to	857	and to	$250 \times 5 = 1250$
1	to	3.4	and to	5

In the first year of operation, the new industry will increase the town's population by E. and F.:

- 1076 — base population without new industrial employees
- 857 — estimated direct increase (E. and F.)

1933



If we assume that the indirectly attracted population will be established by the end of the second year, then the population on Dec. 31, 1955, will be approximately $1933 + 1250 (N.I.) = 3183$.

The derived ratio provides the basis for the prediction of population growth on the basis of expansion in industrial employment, particularly the employment of the metal refinery. If we can discover what employment may be next year, or the year after, and so on, we can assess the total population impact—direct and indirect—of employment increases by applying to the number of additional employees the multiplication factors of 3.4 and 5. The sum of the two will give us the total impact.

POSSIBILITIES OF EXPANSION IN REFINERY AND POPULATION

It is admittedly impossible to estimate with precision the future production and employment of the Sherritt-Gordon Plant. It is possible, however, to attempt a prediction on the basis of general knowledge of trends in the marketing and production of nickel. The following is such an attempt:

STEP I—Present World, Canadian and Fort Saskatchewan

Production of Nickel

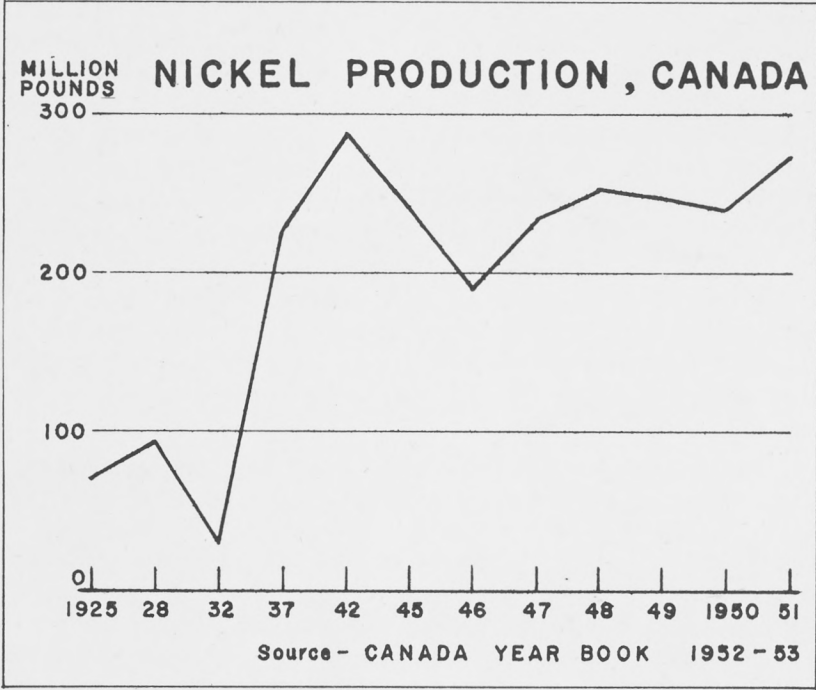
- Fort Saskatchewan scheduled production of nickel—
18,000,000 lbs. per year.
- Canada current production (Canada Year Book, 1952-53)—
247,317,867 lbs. per year.
- Fort Saskatchewan production as percentage
of Canadian Production— 6.7%
- Canadian production as percentage
of World Production—95%

Thus, by determining the present relationship between Fort Saskatchewan, Canadian and World production, we can, assuming these relationships do not change, predict local expansion on the basis of anticipated world and Canadian expansion.

STEP II—Future World, Canadian and Fort Saskatchewan
Production of Nickel

As a basis for determining future Canadian production, we are fortunate in having available the results of a special study on strategic metals, conducted at the request of the President of the U.S.—known as the **Paley Report** (W. S. Paley, Chairman, U.S. President's Materials Policy Commission, 1952). This report, by thorough analysis, establishes that civilian and military requirements in 1975 will push world production of nickel up 127% from the 1950 level to 264,000 T. Applying the relationships determined in Step I, the following 1975 production figures result:

World, 1975	- - - - -	264,000 T. or	528,000,000 lbs.
Canada, 1975	- - - - -	(95% of World)	501,600,000 lbs.
Fort Saskatchewan, 1975	(6.7% of Canadian)		33,607,200 lbs.



STEP III—Expected Annual Increase in Fort Saskatchewan
Production and Employment

By subtraction of the scheduled Fort Saskatchewan production from the estimated 1975 production, we find that there will be an ultimate expansion of 15,607,200 lbs. Assuming that no increase in local production occurs until one full year of production (i.e., Jan. 1, 1956), the above estimated expansion will be spread over 20 years. If it is assumed that this expansion occurs in 20 equal annual instalments, the estimated annual expansion will be:

$15,607,200 \div 20 = 760,360 \text{ lbs. or } 380.18 \text{ T. per year.}$

Sherritt-Gordon will require 250 employees to produce 18,000,000 lbs. or 9,000 T., or expressed in unit terms—the production of 1 T. requires .027 men. Thus an annual expansion of production of 380.18 T. will require an annual addition to staff of $380.18 \times .027 = 10.3$ or ten employees per year.

STEP IV—Population Forecast, Based on Expansion
of the Metal Refinery

Application of the derived ratios (Industrial Employees to Employees and Families, and to Non-Industrial Population), yields the following annual population increases:

E.	to	E. and F.	and to	N.I.
Industrial Employees	to	Employees and Families	and to	Non-Industrial Pop.
1	to	3.4	and to	5
10	to	34	and to	50 = 84

Thus every ten additional industrial employees bring 84 additional people, which includes their families, and the non-industrial workers and their families.

On the assumption that direct population increases occur during the year of employment expansion, and that indirect population increases occur by the end of the second year after the expansion, the following figures are derived:

TABLE 3—Population Forecast—1954 to 1964

Date	Employees	Population Based on Direct Incr.	Population Based on Ind. Incr.	Population Based on Direct and Ind. Incr.
1954	250	1933	-----	-----
1955	250	-----	3183	-----
1956	260	-----	-----	3267
1957	270	-----	-----	3351
1958	280	-----	-----	3435
1959	290	-----	-----	3519
1960	300	-----	-----	3603
1961	310	-----	-----	3687
1962	320	-----	-----	3771
1963	330	-----	-----	3855
1964	340	-----	-----	3939

The reliability of the population forecast depends on the stability of nickel production. A number of conditions give promise of unusual production and employment stability:

1. Canada's dominant position as a producer of nickel

This country's position as the major supplier to the entire world, with few competitors, is reflected in the past record of production. Our accompanying graph reveals that recovery from the depression was rapid after 1932 and that by 1937, annual production was more than double the previous prosperity level. After reaching a peak of 285,211,803 lbs. in 1943, production levelled off at the 250,000,000 mark in the post-war years.

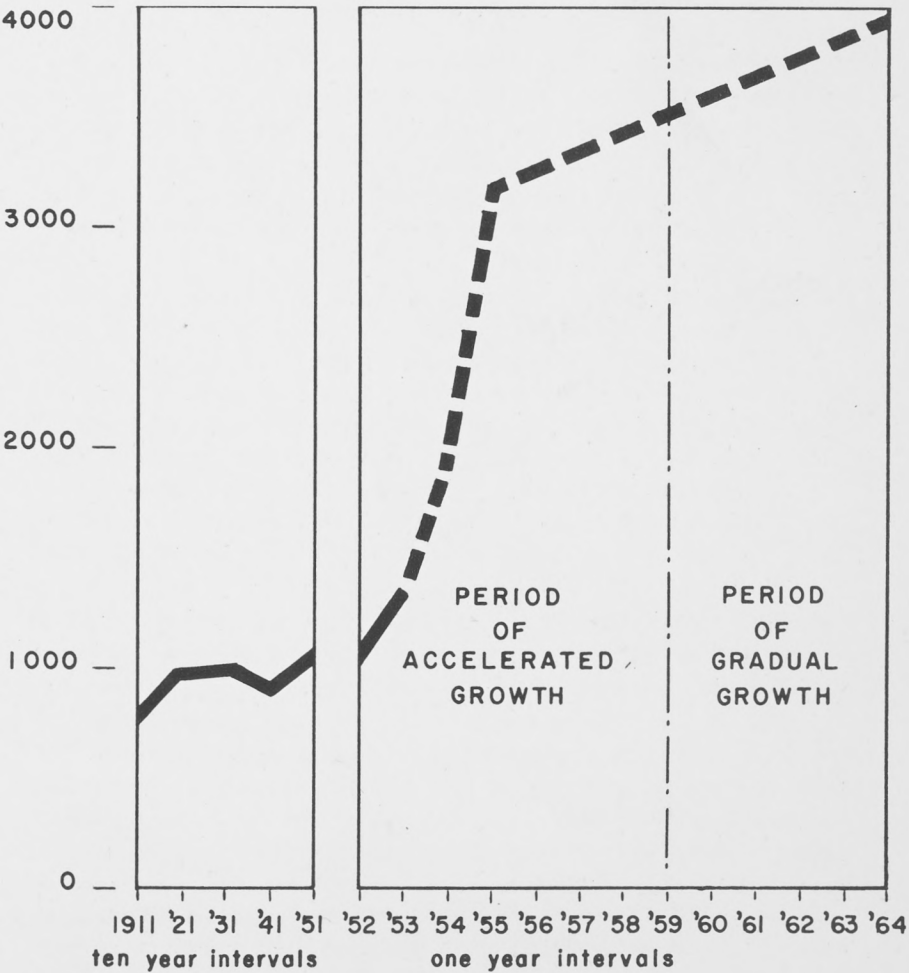
2. Assured markets for the Fort Saskatchewan production

Nickel output is under contract 60% to General Services Administration, Washington, and 40% to a group of U.S. steel companies (Financial Post Nov. 21, 1953).

3. Rising demand for nickel in super-alloys

By virtue of nickel's heat-resistant qualities it is tied to the technology of jet engines and atomic power. For example, the bladed turbine wheel of the aircraft jet engine is

POPULATION FORECAST
TOWN OF FORT SASKATCHEWAN



made from a complex alloy (with nickel content as high as 78%) which maintains strength, curvature, shock resistance and dimensional stability in the red-hot range of 1300° to 1600°F. Nickel is closely linked with the latest technological advances.

All these factors suggest that industrial production and employment in Fort Saskatchewan will have a high degree of stability—and this will be reflected in the town's population growth.

On these grounds, the population forecast based on the expansion of the nickel refinery only, will be taken as a minimum forecast in this report.

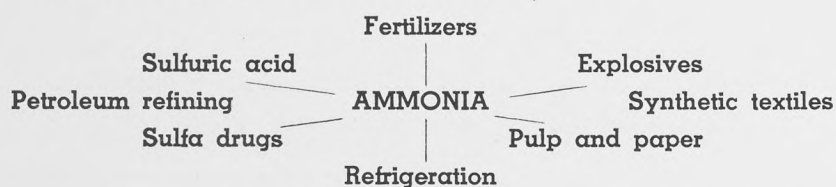
The period 1954-59 characterized by rapid growth, will be called Stage I, and the period of gradual growth, 1959-64 will be Stage II.

FURTHER INDUSTRIAL POSSIBILITIES AND THE TARGET POPULATION

In addition to the stimulus from expansion of nickel production, the town's population will be affected by industrial development arising from—

- the use of raw materials produced by the refinery,
- the mechanical servicing of the new plant, and
- the generally favorable conditions for entirely new industries.

The materials of the refinery—cobalt and copper sulphide, as well as nickel and ammonium sulphate—will be produced for a national and international market, and will not necessarily prove the basis of new industry. Greatest promise seems to arise from the use of ammonia—which, as the accompanying sketch shows, is the hub of an industrial wheel which has as its spokes: fertilizer, explosives, sulfuric acid, petroleum refining, synthetic textiles and rubber, sulfa drugs, refrigeration, and pulp and paper.



Of these possibilities the establishment of a sulfuric acid plant, based on the oxidization of ammonia, seems the most immediate. This opportunity arises out of the following contributing conditions:

- The importance of sulfuric acid to many industries—including chemicals, petroleum refining, iron and steel casts, paints and pigments, rayon and cellulose fibres. (Estimated Alberta demand—30 T. per day.)
- The relatively high cost of transporting the acid on a class-rate basis from centres of production—Trail and Barnet, B.C., Hamilton and Port Robinson, Ontario. There are no commodity freight rates for sulfuric acid in Canada, and transportation costs are inherently high because of the need to ship the acid in special anti-corrosive tank cars, provided at the shipper's expense. Freight costs per ton of acid shipped in from the Pacific Coast are as high as the cost of the material itself. This circumstance alone would seem to create a "natural monopoly."

These two factors—the local market and the high cost of bringing the product in—provide the economic basis of sulfuric acid production from the ammonia of the nickel refinery.

The general industrial potential of Fort Saskatchewan is based on very much the same factors driving Edmonton's development, namely natural gas as fuel and raw material (see accompanying **Gas Well map**), large supplies of river water, suitable industrial land and railway location. Edmonton has, of course, the advantage of a head-start, which means the build-up of certain facilities—wholesale supply firms, machine shops, housing and social conveniences—which are themselves contributing incentives to industrial location; and service by both national railway lines

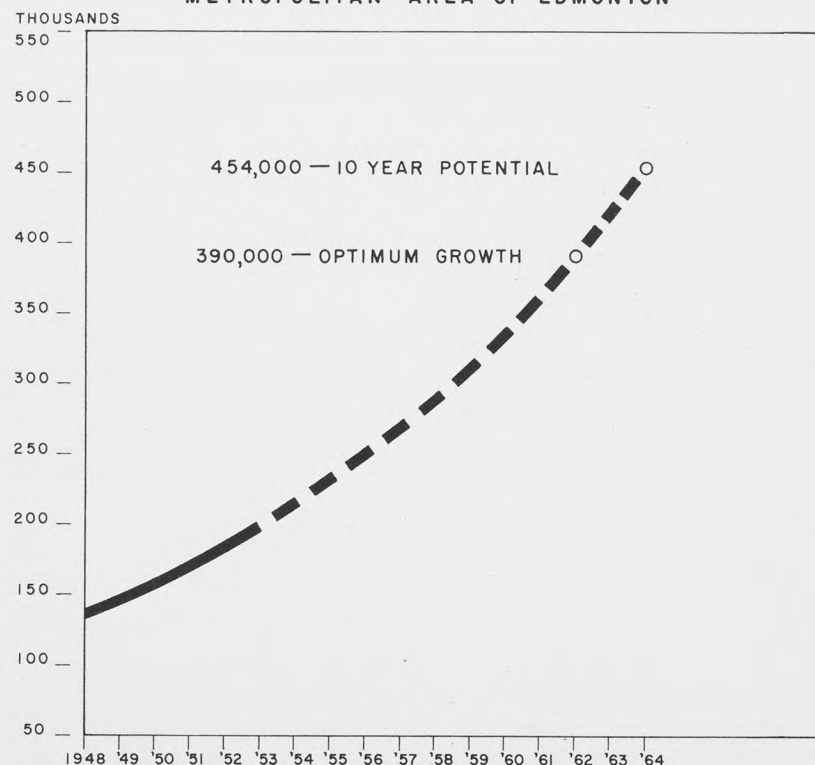
is an advantage. On the other hand, Fort Saskatchewan has lower land prices and taxes and all the virtues of a moderate-sized town. The support of **Central Mortgage and Housing Corporation** assures a level of housing accommodation equal to the big city.

It is not suggested that Edmonton will ever be supplanted as the major urban centre of this region. But the assumption is made that the growth of Fort Saskatchewan will have to be related to the growth of Edmonton, if it is to play the role assigned to it by the regional plan—namely as one of a group of district towns which will gradually draw off the central city's growth over and above its defined optimum population. That population, as approximated in the **Outline General Plan** for the metropolitan area of Edmonton, is 385,000, which is the figure that will be reached when all the reserve residential land in the Edmonton area is developed at a density of about 24 persons to the acre. How quickly could this population be attained? The accompanying graph shows what might happen. It is based on the projection for ten years of the average annual rate of increase of the past six years (the post-Leduc period). On this optimistic assumption, the residential area provided in the metropolitan plan would be filled by 1962, and by 1964 the towns in the region of Edmonton will have to absorb between them 64,000 people, which is the extent to which Edmonton's potential will exceed the optimum at that date. If it is assumed that this "surplus" population will be distributed equally amongst the six existing district towns, or equivalent new towns (and in the face of many uncertainties it is difficult to do otherwise)—thus each new town will have to absorb an additional 10,000 people by 1964. This process is already under way in Fort Saskatchewan.

The total population required to reach the 1964 target population would be 10,000 plus the forecast figure of 3,939 or about 14,000. Is this a realistic target to set for Fort Saskatchewan? Considering that the town has the same basic industrial locational factors as Edmonton, the target seems not altogether beyond reach. For example, the direct and indirect effects of one primary chemical industry on the scale of the Canadian Chemical Company would push the town's population beyond 10,000 by 1964. Thus, in addition to providing for a forecast population based on known factors, the plan will set aside sufficient land to absorb a hypothetical target population of 14,000 in 1964. In this way the Fort will be prepared for anything the future may bring.

Land requirements for this hypothetical population will be considered separately, and only in a general way, under the heading of **Target Plan**.

POPULATION FORECAST METROPOLITAN AREA OF EDMONTON



RESIDENTIAL LAND

Present Conditions:

Land—38 acres or 7.9% of the built-up area.

Conditions of Housing.

TABLE 4—Housing Conditions by Class—Town of Fort Saskatchewan

Definition of Typical House							
CLASS	Age	Foundation	State of Repair	Area	Average Assessed Value - 1953	Number Within Class	% of Total
I	1940-53	Full, Concrete	Good	1200 Sq. Ft.	\$4066	146	43.6%
II	1930-39	Part, Concrete	Fair	750 Sq. Ft.	\$1837	63	18.8%
III	1915-29	Dugout	Poor	450 Sq. Ft.	\$ 879	95	28.4%
IV	Pre-1915	None	Beyond Repair	under 450 Sq. Ft.	\$ 500	31	9.2%
TOTAL						335	100.0%
NOTE: The above definition of each class does not apply to all the houses in each class. The system of scoring in the building conditions survey was such that a house built in 1920 would fall in class I if it had a full foundation, was in fair state of repair and was at least 750 square feet in area. The total number of points determined the class.							
SOURCE: Building Conditions Survey—E.D.P.C.—August, 1953. Assessment Records—Town of Fort Saskatchewan—1953.							

Analysis

The **Land Use Map** shows the location of houses in the town and the **Condition of Buildings Map** indicates their quality. It will be noticed that there are no large concentrations of substandard houses (Classes III and IV), and that the 209 houses in good condition (Classes I and II) are closely grouped in the eastern and northeastern parts of the town, and mainly north of the railway track. Since, however, there are 126 houses, or 37.6% of the total, in poor condition, it is of some importance to know the effect of these, the causes, and the means of preventing the recurrence of substandard houses in the future.

What is the effect of substandard housing on the town economy?

Our answer is to be found in a comparison of revenue and costs for each class of property.

TABLE 5—Municipal Revenue and Cost, by Housing Class

	A.	B.	C.	D.
CLASS	Average Assessed Value	Average Revenue at 19 Mills	Average Cost for Services to Property	Deficit or Surplus (B-C)
I	\$4066	\$77.25	\$102.10	—\$24.85
II	1837	34.90	102.10	—67.20
III	879	16.70	102.10	—85.40
IV	500	9.50	102.10	—92.60

SOURCE: Financial Statement 1952—Town of Fort Saskatchewan.
Building Conditions Survey—E.D.P.C.—August, 1953.

NOTE: B. Derived by applying to A. the municipal mill rate (1952).

C. Derived by dividing the total number of tax-paying properties (335 residential and 75 business) into the total cost of services only \$41,965 (1952). Costs of administration, education, health and social welfare, and other costs which cannot be attributed directly to property, are excluded.

The figures show that, on average, none of the houses in the town—not even the best—yield enough municipal taxes to pay for the cost of police and fire protection, waste removal, roads and lanes, sewer, water, and the other services to property. The difference is made up largely by assessment of business property, and from grants and subsidies. But the estimated deficit is only \$24.85 in the case of the best housing and \$92.60 for the worst—a difference of \$67.75. The extent to which substandard housing affects the town's finances and the individual taxpayer can be seen in Tables 6A and 6B.

TABLE 6A—Estimated Residential Tax Revenue Today, by House Class

CLASS	No. in Class	Average Revenue	Total Estimated Revenue
I	146	\$77.25	\$11,278.50
II	63	34.90	2,198.70
III	95	16.70	1,586.50
IV	31	9.50	294.50
TOTAL	335		\$15,358.20

In Table B it is assumed, for the sake of argument, that all Class III houses fall into Class I, and all Class IV houses into Class II. The result at the current mill rate would be a gain of \$6,639.65, or, in other words, the town loses \$6,639.65 of potential revenue because 37.6% of its housing is substandard. On the basis of the current assessment of land and buildings (\$695,393) the "lost" amount is equivalent to 9.5 mills on the tax rate. Everybody pays for poor housing.

TABLE 6B—Estimated Residential Tax Revenue Without Substandard Houses

CLASS	Average Revenue, No Substandard	Total Revenue, No Substandard	Net Gain
I		\$11,278.50	
II		2,198.70	
III	\$77.25	7,438.75	\$5,852.25
IV	34.90	1,081.90	787.40
TOTAL		\$21,997.85	\$6,639.65

What are the conditions which have determined the quality of the town's houses in the past?

Age

The effect of age on building conditions is shown in the accompanying graph on the **Age Composition of Buildings**. Whereas only 6.8% of the buildings erected since 1940 have been classed as substandard, 69.8% of the buildings built before 1915 fall into that group. To a certain extent this is a natural and unavoidable condition. But not entirely. The Church manse, which is 40 years old, has been designated Class I. It is a solid house—wood frame with brick veneer finish, on a full concrete foundation, containing 1,302 square feet of floor space. And, incidentally, it provides the town \$5,605 of assessment, lot included.

Building and Zoning Regulations

Further analysis suggests that it is not age alone which causes decay, but "age plus original quality of construction." For example, the 17 substandard houses built between 1915 and 1929 (the remaining six are business properties) are characterized by the following: bad state of repair; no foundations; area ranging from 196 to 662 square feet; average assessment for house and lot, \$646; total assessment of 17 houses, \$10,984. Two houses of the manse type bring more revenue than 17 substandard dwellings.

The building conditions of the period 1915-29 reflect the inadequate regulation of building standards. By contrast, construction during the last building season showed what a good building code can do. Apart from construction specifications, two simple provisions go a long way to provide a "floor" below which standards cannot fall. They are:

1. the requirement of concrete foundations, below the frost line to a minimum of 4½ feet, and
2. the establishment of a minimum house area of 750 square feet.

The results are seen in the assessment of the 74 houses built for the town's new residents in 1953—average assessment for house and lot will be in the neighborhood of \$4,980. And, incidentally, good building makes for a comely town, as the accompanying photograph shows.



Good building makes for a comely town.

Inadequate zoning control in past years has taken its toll on the quality and value of housing. The **Land Use and Building Conditions Maps** reveal the effect of the narrow 33-foot lot and of "bungalows mixed with bulk oil"—both, fortunately, now things of the past.

The Balance of Housing Supply and Demand

Number of existing dwellings	- - - - - 335
Owned	- - - - - 79%
Rented	- - - - - 21%

If there are not enough houses of the right size and cost in the town, there will be overcrowding. And congestion of people in houses is one of the conditions which increases the rate of physical and economic depreciation. Now just what is the extent of overcrowding in the town?

The population survey, from which information was obtained from two-thirds of the houses, indicated the following situation.

Occupancy	Per Cent of Total
Less than one habitable room per person	36.3%
One habitable room per person	20.2%
More than one habitable room per person	43.5%

NOTE: Habitable rooms do not include bathroom or kitchen.

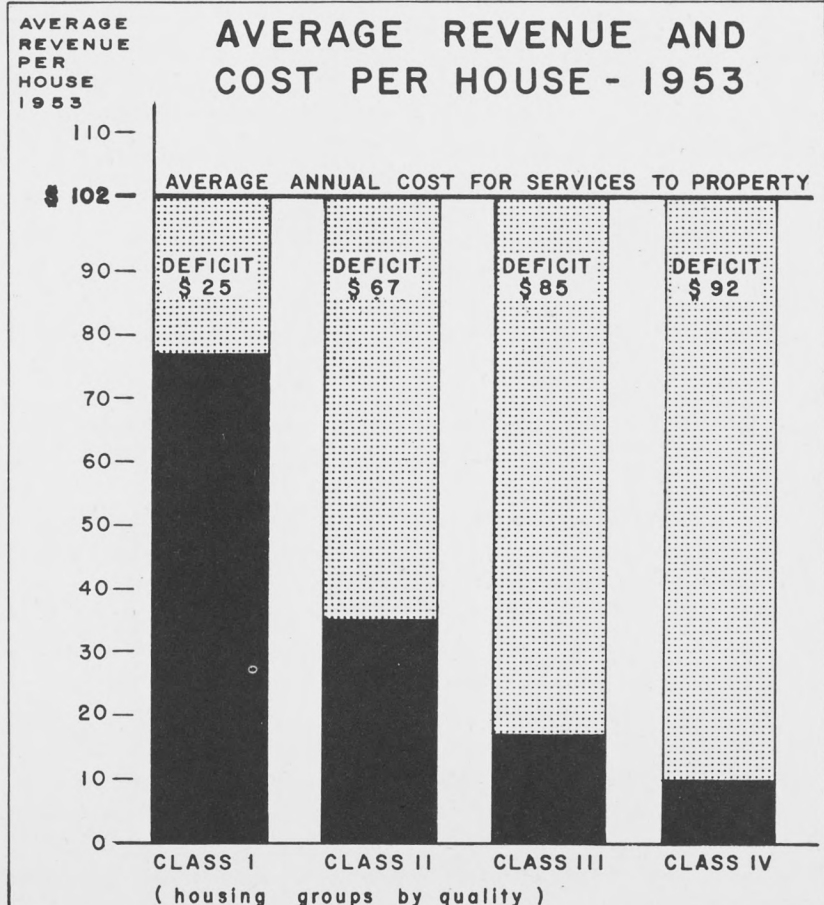
The picture emerging is quite favorable—63.7% of the houses are large enough for their occupying families. But it is important to know what the 36.3% of crowded dwellings means in terms of housing shortage. The following table, based on survey returns, tells the story:

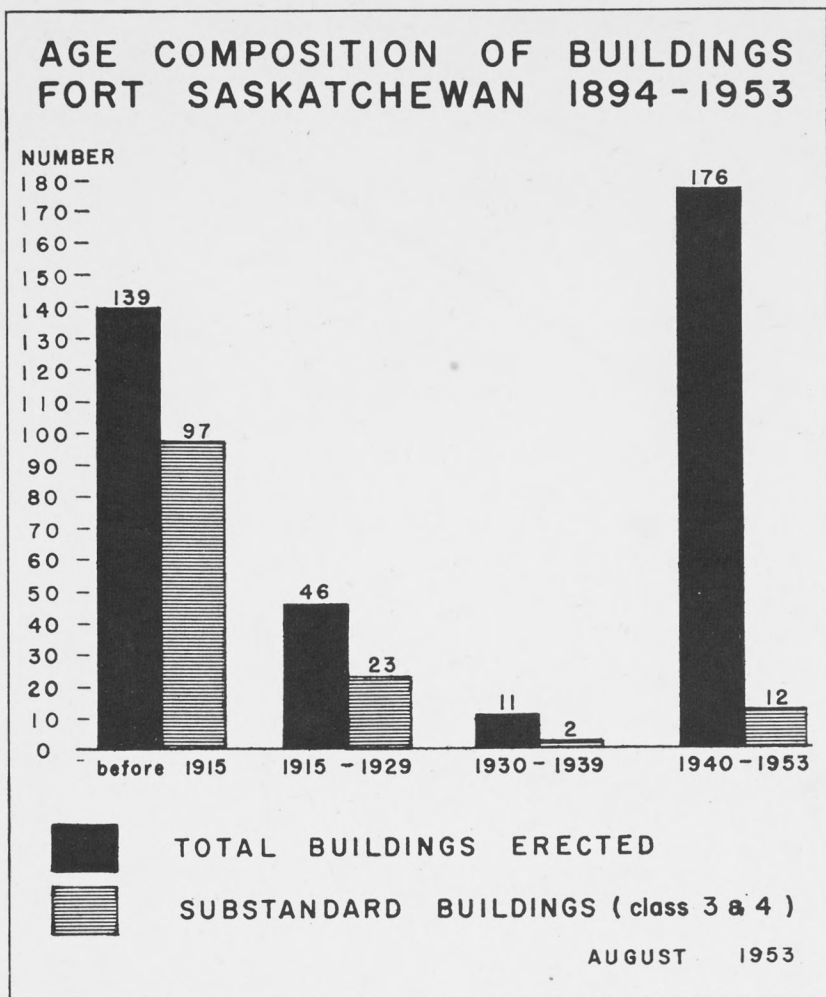
TABLE 7—Overcrowded Dwellings and Backlog Housing Demand

A. Condition	B. % of Total Dwellings	C. No. of Dwellings	D. Rooms Required	E. Housing Equivalent
2 or more Rooms Lacking	23.3%	78	156	39
1 room lacking	13%	44	44	11
TOTAL	36.3%	122	200	50

NOTE: C. represents the percentages in B. taken on the total of 335 dwellings.
D. is derived by multiplying the rooms lacking in A. by C.
E. is derived by dividing D. by 4, on the assumption of 4 habitable rooms per house.

SOURCE: Population Survey, Fort Saskatchewan—E.D.P.C. September, 1953.





The analysis shows that there is a need now for 50 dwellings to relieve whatever overcrowding now exists, and to eliminate entirely one of the causes of house and assessment deterioration. What kind of dwellings? The income scale of wage-earners as recorded at the 1951 Census suggests what may be necessary, as follows:

TABLE 8—Wage-Earner Incomes and Housing Demand, Town of Fort Saskatchewan, 1951				
A. Income Group in Dollars	B. No. of Male Wage- Earners	C. Cumulative Percentage	D. Monthly Rental Capacity	E. Optimum Capital Cost of House
Under \$999	24		Under \$21	\$1250 - 2500
1000 - 1999	56		21 - 41	2500 - 5000
2000 - 2999	54	92%	42 - 62	5000 - 7500
3000 - 3999	9		63 - 83	7500 - 10,000
4000 - 4999	3		84 - 104	10,000 - 12,500

NOTE: D. is based on the assumption that a family cannot afford to pay more than one-quarter of its monthly income for rent.
E. assumes that a family cannot afford to pay more than two-and-one-half times its annual income for a house.

SOURCE: Federal Census, Dominion Bureau of Statistics, 1951.

Census figures show that 92% or 134 of the male wage-earners (representing 47% of all the families) fall within the group who cannot afford to own the minimum house (\$7,500 and up) that will meet the requirements of the town's building code. There is a strong suggestion here that more rental housing, which is inherently less expensive, is required to relieve the 122 overcrowded houses.

What are the conditions which will develop high-quality residential areas in the future?

Our answer arises primarily from the lessons of the past. In a word, we will need enough housing of the right kind and price, and enough land for that housing, in the right place. Let us deal with these needs one by one.

Enough housing—

Future housing needs can be estimated from the population forecast figures, which, as you will recall, showed the town's growth falling into two periods: Stage I, 1954-59, the period of "digestion" in which the town would absorb the rather sudden impact of the Sherritt-Gordon plant and related industries, and Stage II, 1959-64, the period of gradual growth arising from an anticipated expansion in the production of nickel. The estimated minimum and maximum population figures, and corresponding housing requirements at the end of these periods, are as follows:

TABLE 9—Population Forecasts and Estimated Housing Demand, 1959 and 1964

Year	A. Minimum Forecast	B. Increase over Dec. 31/53	C. Total New Housing Demand
1959	3519	2177	588 units
1964	3939	2597	701 units

NOTE: C. is derived by dividing B. by 3.7, on the assumption that the average family size will be the same as it is reported in the Federal Census.

. . . of the right kind and price.

Family incomes will mainly determine the nature of the town's future housing. While we cannot tell exactly what future incomes will be, we can get some idea from the current wages of similar industries in the Edmonton area—say, the petro-chemical industries which employ, as will Sherritt-Gordon, a high proportion of professional and skilled workers. The following table assumes that the families in the new units, in 1959 and 1964, will have the same income scale as the petro-chemical employees have today.

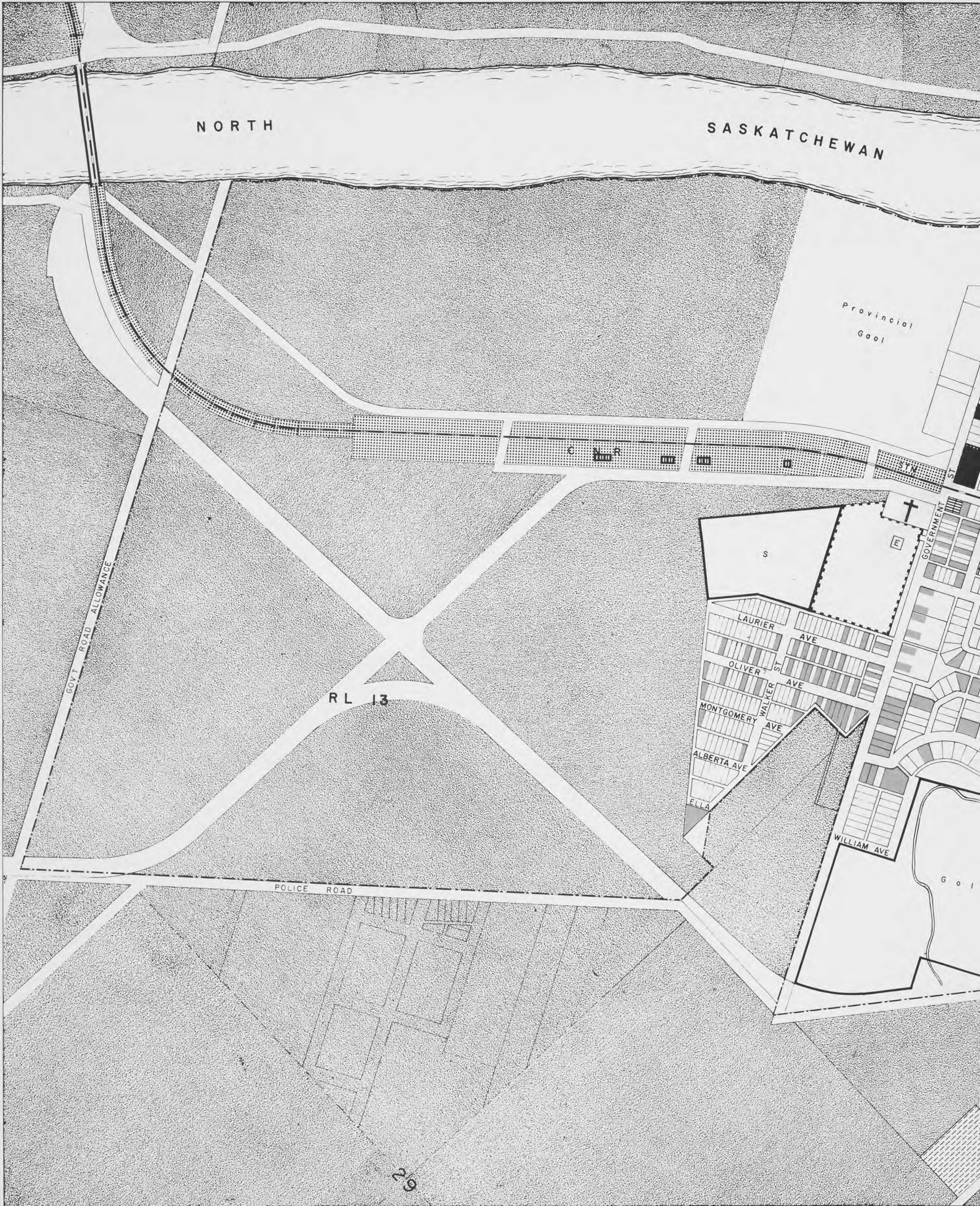
TABLE 10—Income and Housing Demand, 1959 and 1964

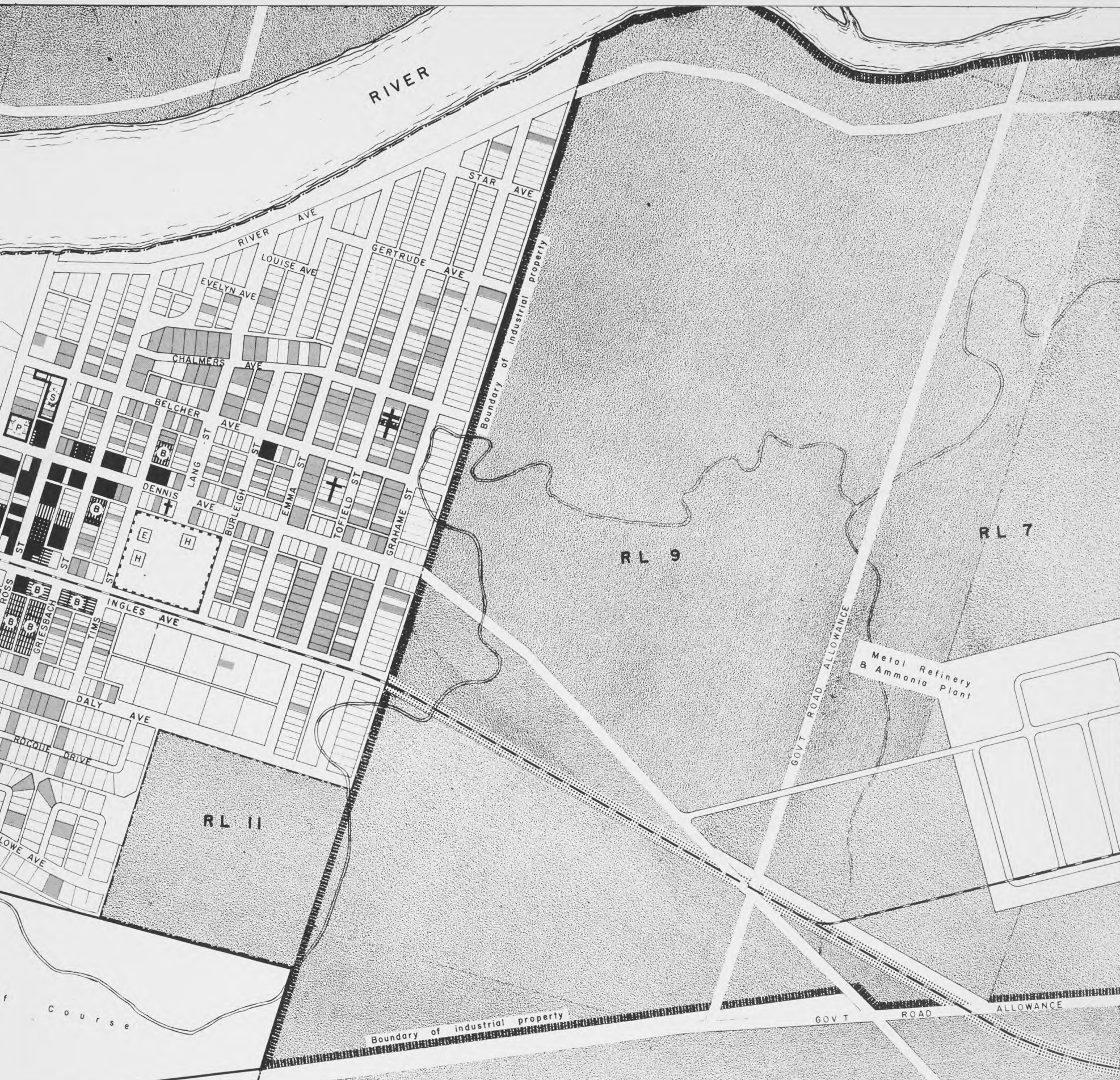
A. Income Group in Dollars	B. % of Pop.	C. Monthly Rental Capacity	D. Optimum Capital Cost of House	E. Number of Units, 1959	F. Number of Additional Units, 1964
\$500 - 999	0. %	Under \$21	\$1250 - 2500	0	
1000 - 1999	2. %	21 - 41	2500 - 5000	12	2
2000 - 2999	32.7%	42 - 62	5000 - 7500	193	37
3000 - 3999	46.8%	63 - 83	7500 - 10,000	276	53
4000 - 4999	12.9%	84 - 104	10,000 - 12,500	77	15
Over 5000	5.0%	104 +	12,500 and over	30	6
TOTAL				588	113

SOURCE: Industrial Survey, Metropolitan Edmonton, E.D.P.C., June, 1952.
















NOTE: C. is based on the assumption that a family cannot afford to pay more than one-quarter of its monthly income for rent.

D. assumes that a family cannot afford to pay more than two-and-one-half times its annual income for a house.





EXISTING LAND USE TOWN OF FORT SASKATCHEWAN

- | | | |
|---|--|---|
|  RESIDENTIAL |  HEAVY INDUSTRY |  CHURCHES |
|  CENTRAL BUSINESS |  RAILROAD |  CEMETERY |
|  PUBLIC BUILDINGS |  AGRICULTURE |  SPORTS ASSOC. |
|  LIGHT INDUSTRY & WAREHOUSES |  SCHOOLS |  PARKS |
|  BULK OIL & LUMBER |  ELEMENTARY | |
| |  JUNIOR HIGH & HIGH | |



200 0 200 400 600
SCALE IN FEET

EDMONTON

DISTRICT

PLANNING

COMMISSION

OCTOBER 1953

The table indicates the housing demand which, at current construction costs, could not be accommodated in single-family, detached houses. In 1959, 205 units, costing less than \$7,500 will be required, and in 1964, an additional 39. This kind of demand can be met only by some form of multiple-family unit, that is, apartments or row houses. Rentals required are mainly in the range of \$42-62 per month. It is assumed that the remaining 65% of the families (383 in 1959, and 74 in 1964) will be able to afford detached houses.

... and enough land for that housing.

The plan will have to provide sufficient land for both the backlog of unsatisfied housing demand, and the estimated future demand. Thus the total demand for 1959 may be stated as follows:

B.		F.			
Backlog Demand		+ Future Demand		= Total Housing Demand	
1959	50 units	+	588	=	638

In estimating the additional land required for the total housing demand we must first note the number of residential lots already available within the subdivided portion of the town. We find there are 419 lots for single-family dwellings, and 1 area specifically subdivided for multiple units (in Ross Creek) with a capacity, at prevailing standards, for 50 units. (See accompanying **Ross Creek Replotting.**) Thus, if we assume that all the backlog demand (50) is met within the area already subdivided and that the older areas fill in before new areas are developed, we get the following picture:

	Demand for Housing	Supply of Land, Subdivided Area	Supply of Land, New Area
Backlog	50 multiple units	for 50 units	0
	383	383 lots	0
	205 multiple units	0	?

If the demand for row housing is split equally between apartments and row houses, the supply of land may be calculated in this way:

102 apartments at a density of 14 dwellings to the gross acre (includes streets and lanes) - - -	7.2 A.
103 row houses at a density of 8 dwellings to the gross acre - - - - -	12.8 A.
	20.0 A.
Plus 10% public reserve allowed by subdivision regulations for parks, tot lots, etc. - -	2.0 A.
Total 1959 - - - - -	22.0 A.

The assumed densities are based on the minimum site requirements of the town's Interim Development Board, which are 5,000 square feet for the first unit, and 2,000 square feet for each additional unit. The difference in density between apartments and row houses is due to the greater length of street and lane required by the latter.

Total additional housing demand in 1964 has been estimated at 113 units, of which 39 will be multiple and 74 single-family. (See Table 10 **Income and Housing Demand**, 1959 and 1964.) After the 1959 demand was satisfied, there remained 36 undeveloped residential lots within the town (of a total of 419 at Dec., 1953). If these are filled, there remain 38 single-family houses and 39 multiple-unit dwellings to be provided on new land. Repeating the assumptions of 1959, additional land required in 1964 will be:

	Total Acreage
38 single-family houses at 5 dwellings to the gross acre	7.6
20 row houses at 8 dwellings to the gross acre - - -	2.5
19 apartment dwellings at 14 dwellings to the gross acre	1.3
	11.4
Plus 10% public reserve allowed by subdivision regulations for parks, tot lots, etc. - - - - -	1.1
Total 1964 - - - - -	12.5

Thus, adding the residential land needs for 1959 and 1964 we get:

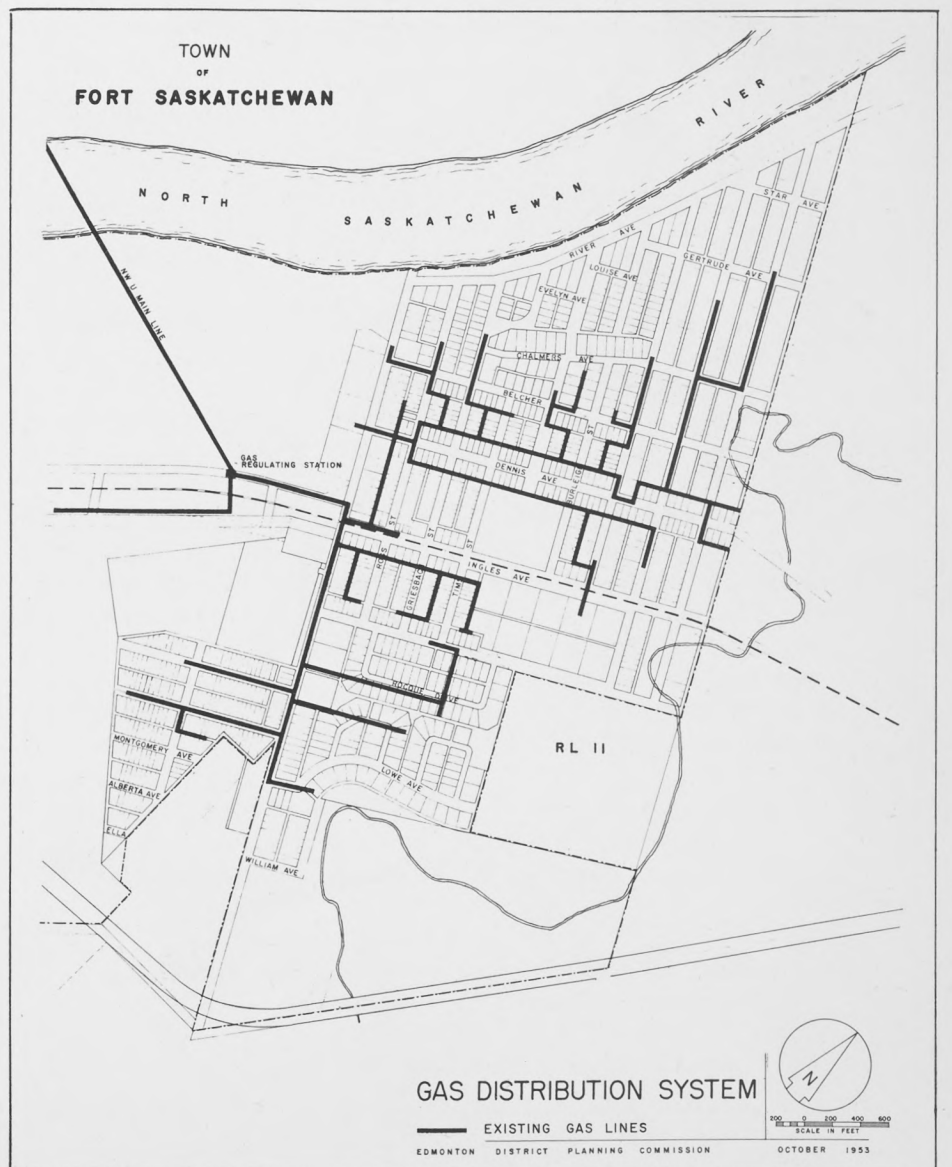
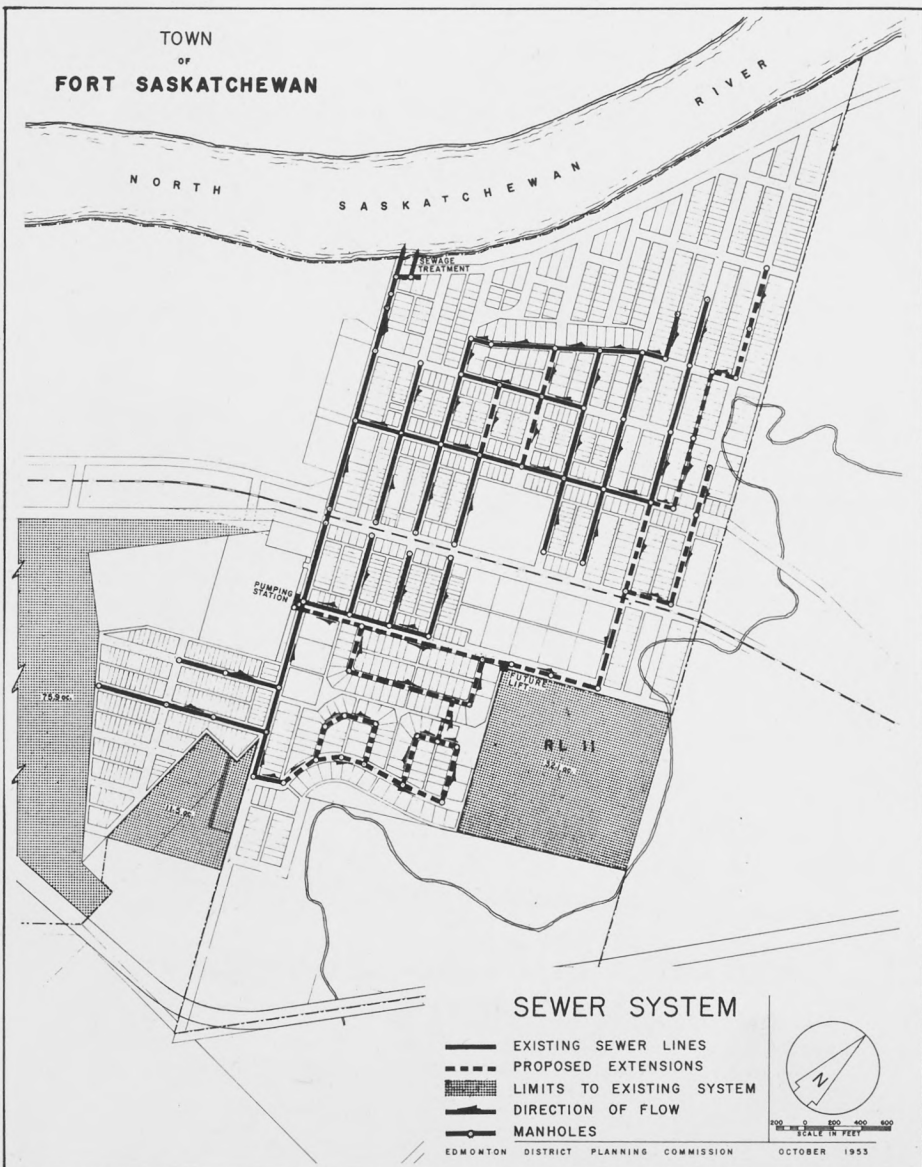
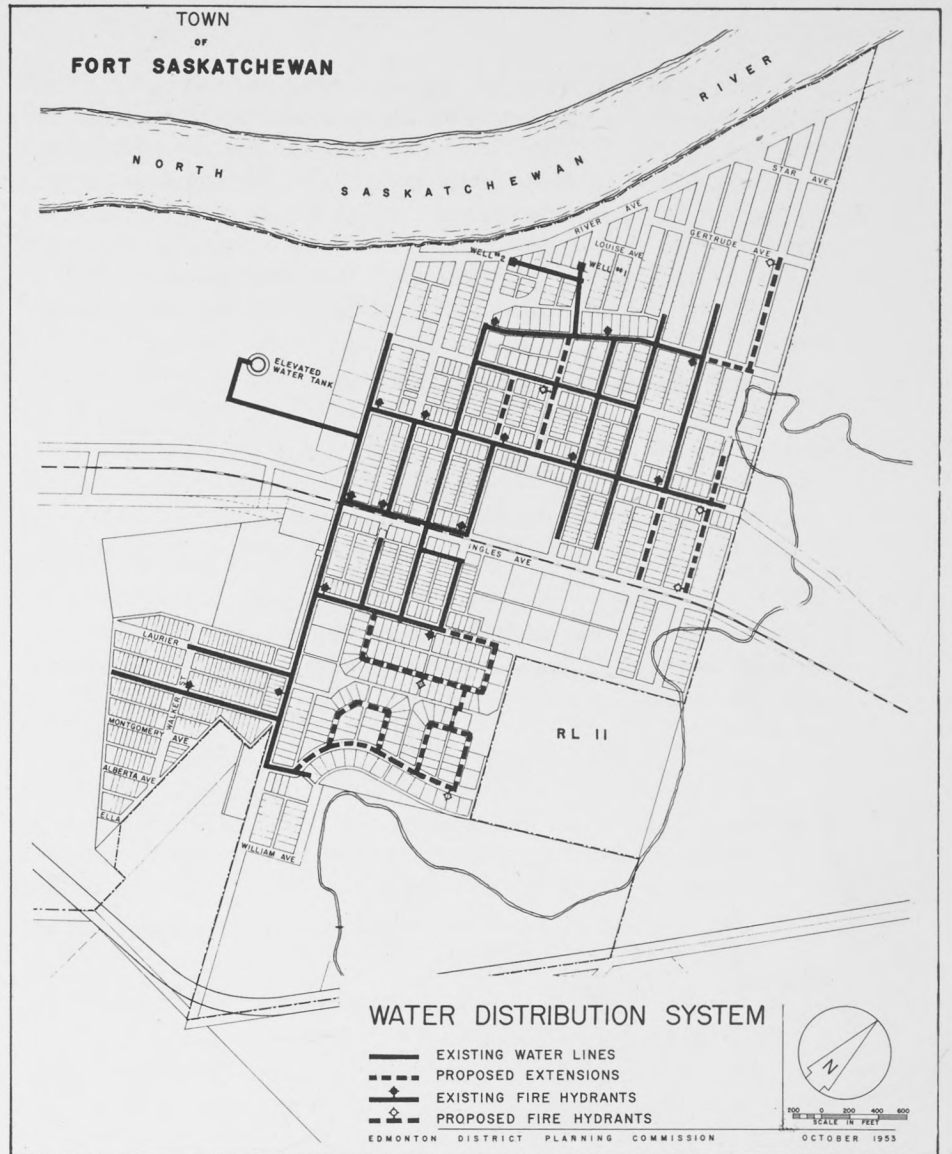
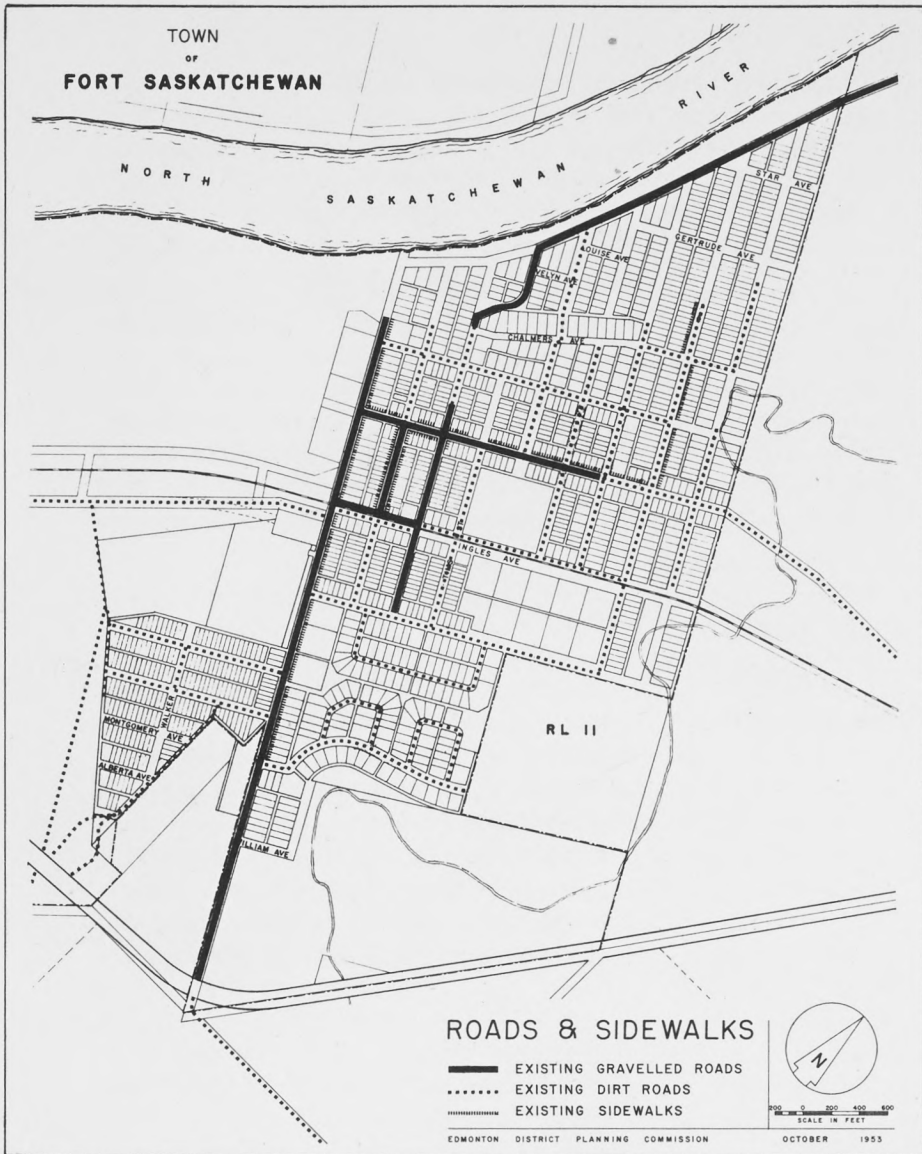
1959	- - -	22 acres
1964	- - -	12.5 acres
		34.5 acres

This may be taken as the absolute minimum requirement. It assumes that housing will be strictly related to income, and therefore, that 35% will be multiple. However, the same number of units (751, including backlog) provided in the form of detached houses on separate lots would create a demand for 48 acres in 1959 and 25 acres in 1964—a total of 73 acres. Considering the townspeople's present strong preference for the single-family house, the plan will make provision for this higher estimate in land requirements.

... in the right place.

The following are the conditions which determine the choice of new residential land:

FACTOR	EFFECT
Existing Land Use	On the east—heavy industry limits residential expansion beyond town boundaries, except for a 32-acre wedge of land in R.L. 11 (see Land Use Map). On the west—jail farm limits residential expansion within town limits, at present. On the south—golf course limits expansion. Generally favorable to housing development, ranging from level-undulating (0-2% slope) to gently rolling (slope 4-8%). Barriers to development—creek and steep slopes to the east and south (see Topography Map).
Topography	Drainage good, except in indicated areas. Fall of land south of Daly Avenue has required a pumping station for servicing the new Ross Creek area (see Sewer Map).
Roads	Highway 15, by-passing the built-up area, cuts through and bisects potential housing land in the southwest.
Utilities —Water	Expansion limited by supply. Domestic water—from two wells with sufficient potential capacity (according to engineers) to serve 4,500 domestic consumers. (1952 estimate.) Iron removal plant—completed in 1953, can be converted to form an integral part of an over-all water-softening-and-treatment plant using River water—in the event of increased demand and complete sewage treatment by the City of Edmonton. For industrial purposes—supply from the River is sufficient to meet any demand (for example: the nickel refinery-ammonia plant will use 79,938 tons per day)—with the exception of those industries, food and beverage, which may require water and a high degree of purity.
—Sewer	Capacity sewage disposal plant (primary sedimentation)—for a population of approximately 2,500. Capacity existing mains—approximately for the population capacity of subdivided part of the town—2,945, not sufficient capacity for Stage I. Topography—the land falls to the River in a northeasterly direction and thereby creates a bias for the extension of the existing system to the southwest, on what is presently jail property.



—**Sewer** (Con't) Pumping station and lift (as indicated on the **Sewer System Map**) make possible the servicing of a 32-acre area just east of town limits. Ross Creek Valley provides a natural drainage channel to the River, making possible economic servicing of areas to the southwest and southeast of the built-up area. In the event of development crossing Highway 15 to the south, a main trunk line built on its bank and extending to a relocated disposal plant at the mouth of the creek, would facilitate servicing of areas east and west of the creek.

—**Gas and Electricity** Available in quantities sufficient to meet the needs of the forecast and target populations.

On the basis of the above factors, the lands selected to meet the requirements of the forecast populations at 1959 and 1964 are shown in the maps of **Proposed Land Use** and of the **Target Plan**.

In Stage I, the Ross Creek area takes precedence over alternatives because, on the one hand, the 76-acre area just west of the built-up town is still jail property, and, on the other hand, Ross Creek has some definite attributes:

- (1) It can be serviced on the basis of the sewer system as presently designed and equipped;
- (2) Two owners and two main buildings reduce problems of acquisition and development to a minimum; and
- (3) It forms a logical extension, according to plan, of the subdivisions just across the town boundary, as can be seen in the accompanying sketch plan for the Ross Creek area.

But to satisfy the requirements of Stage II, the town must begin to extend in a southwesterly direction, where conditions for satisfying the ultimate residential needs are best.

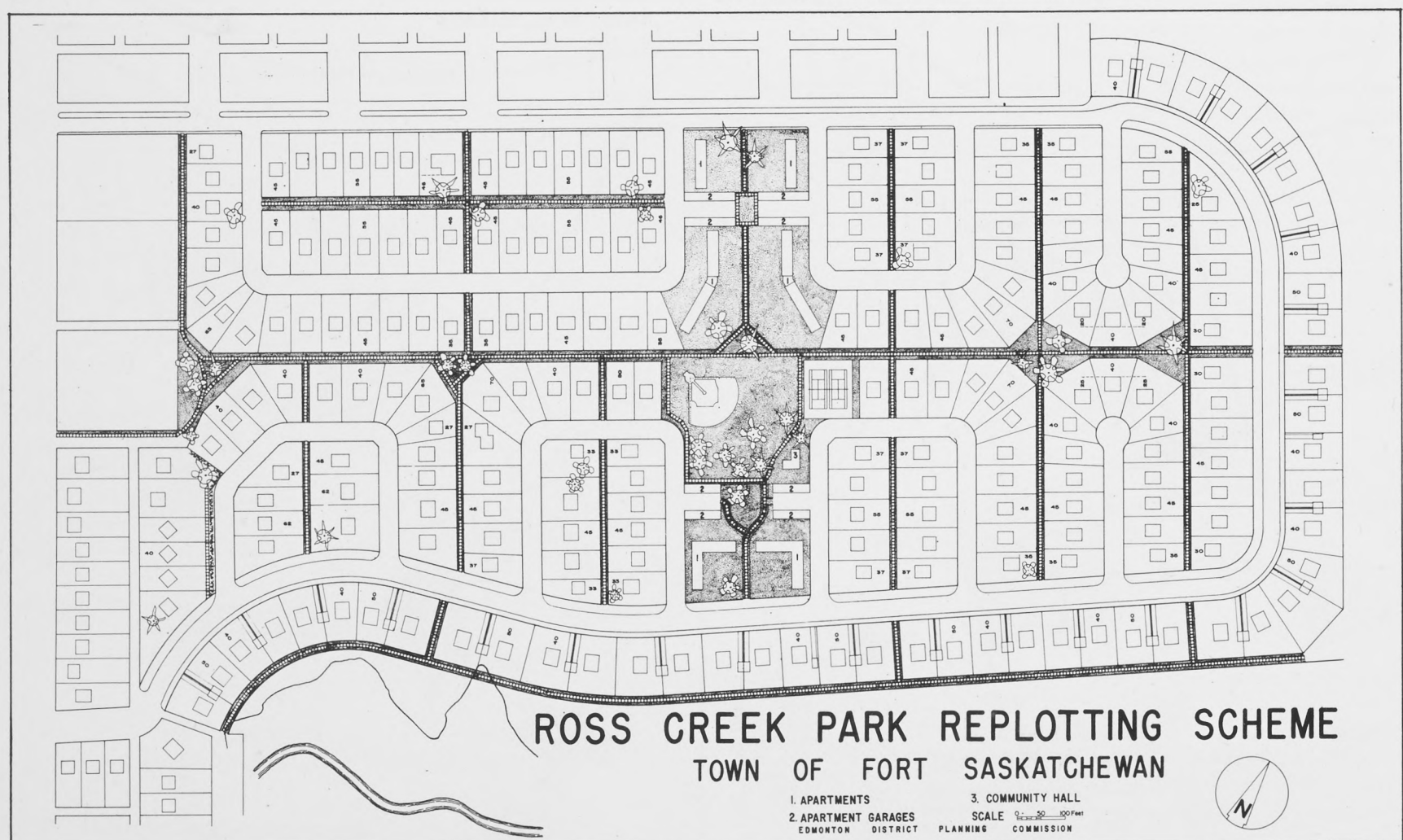
. . . and built within properly designed and protected residential areas.

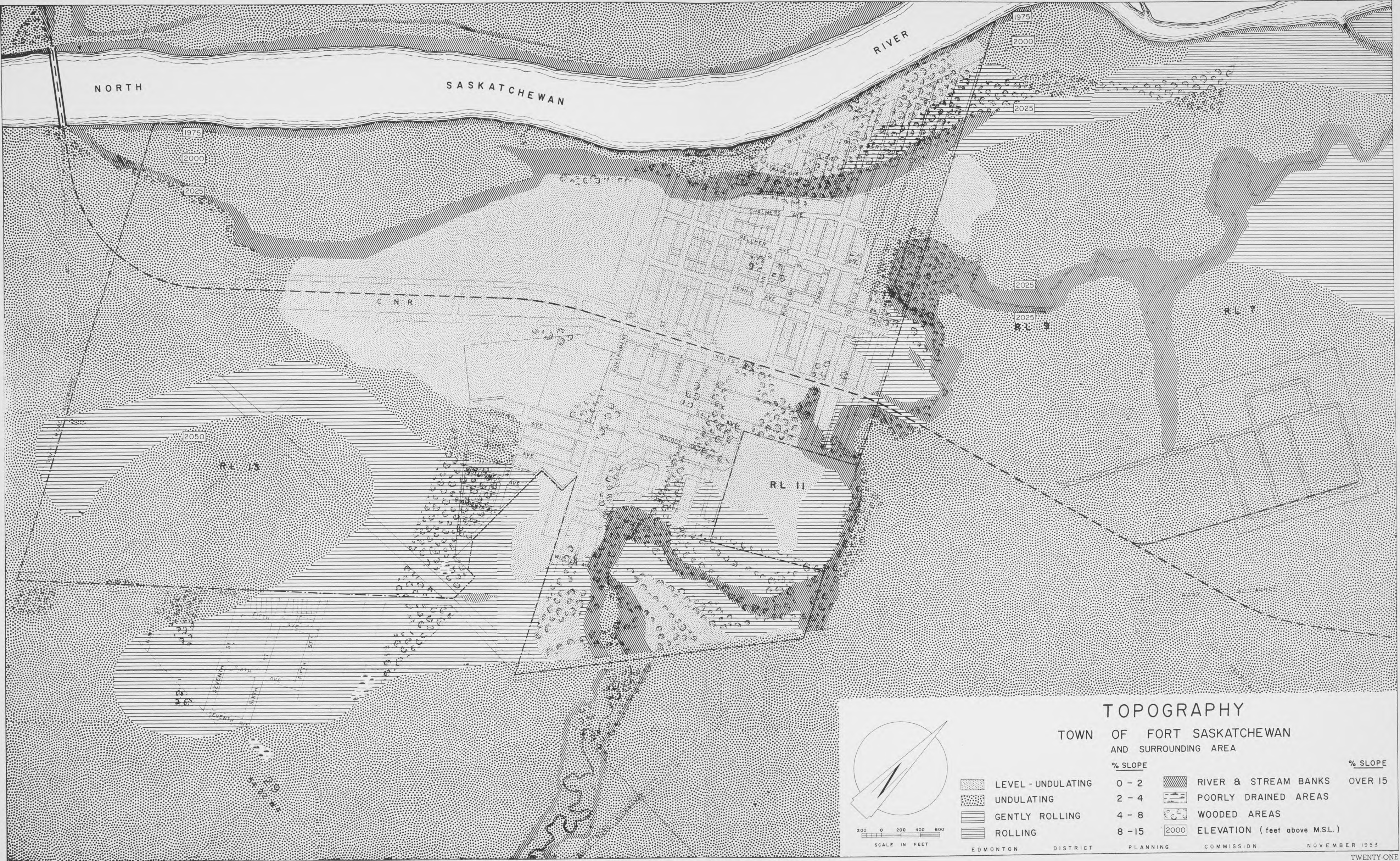
In addition to making provision for enough housing of the right kind and price, and enough land for that housing in the right place, the plan proposes that residential areas be developed in such manner as to provide for the maximum comfort, safety and convenience of the residents, while preserving the values of the individual houses. Inspection of the Ross Creek Plan, which is partly in effect, illustrates some of the principles:

1. Specialization of streets to separate through and local car traffic.
 2. Separation of car and foot traffic.
 3. Provision of a central playground area, located for maximum accessibility, and linked with a footpath system, making it possible to reach the area without crossing main roads.
 4. Provision of tot lot playing areas accessible to small groups of houses.
 5. Protection of the area from antagonistic land uses by roads, planting and natural features.
 6. Creation, by subdivision design, of a park-like setting.
- If the Ross Creek area were a complete neighborhood (approximately 200 acres) the following principles would be added:
7. Provision of a neighborhood shopping centre, centrally located, accessible by the footpath system, and large enough to provide the day-to-day needs of the neighborhood — food, hardware, drugs and personal services.
 8. Provision of an elementary school site, so located as to result in a maximum walking distance from home to school of one-half mile, and large enough (minimum 4½ A.) to provide for a 12-room school.

These are the experience-tested conditions which "kill two birds with one stone"—that create both the best residential environment and the highest long-term property values. The plan proposes that the principles be applied to the residential extensions indicated in Stages I and II, and to the Target Plan, should it materialize.

The plan completes the protective system by dividing the major land uses into zones, which ensure the separation of housing from stores and all the other land uses.

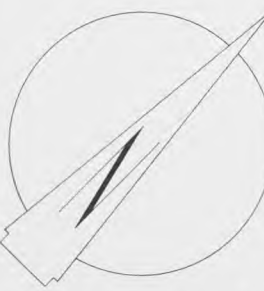




TOPOGRAPHY

TOWN OF FORT SASKATCHEWAN
AND SURROUNDING AREA

% SLOPE		% SLOPE	
0 - 2	LEVEL - UNDULATING	OVER 15	RIVER & STREAM BANKS
2 - 4	UNDULATING		POORLY DRAINED AREAS
4 - 8	GENTLY ROLLING		WOODED AREAS
8 - 15	ROLLING		ELEVATION (feet above M.S.L.)



SCHOOL LAND

The Town of Fort Saskatchewan is part of the rural-urban School Division No. 13, called Clover Bar. As such it serves as a school centre, both for its own school children, and for young scholars from the surrounding farms—from as far as Highway 16, 12 miles south; and Elk Island Park, some 14 miles east. Schools are provided on sites indicated on the map of **Existing Land Use**. The six-acre site, north of the C.N.R. tracks, contains both elementary and high-school rooms (capacity 16, present accommodation 19) and is adjacent to the east-west main road; the 10-acre site south of the tracks contains a new eight-classroom elementary school, and is adjacent to the north-south main road. The composition of the school population in January, 1954, by status and origin, was as follows:

TABLE 11—School Population—Town of Fort Saskatchewan, January, 1954

Status	Town Origin	Per Cent of Town	Country Origin	Per Cent of Country	Total	Per Cent of Total
Elementary (Grades 1-6)	205	65%	81	38%	286	54%
Junior High (Grades 7-9)	70	22	73	34	143	27
Senior High (Grades 10-12)	40	13	60	28	100	19

GRAND TOTAL 315 214 529

SOURCE: Clover Bar School Division.

The plan is primarily concerned with providing adequately, within the forecast period, for all the necessary land uses within the town—and this necessarily includes school sites. To determine how much land will be required for this purpose, we must first estimate the future demand for classrooms. (See Table 12.)

Classroom demand arising from the rural area is more difficult to estimate. It will be affected by the changes in School Division planning which cannot now be foreseen. But if we assume the continuation of trends established since 1947, the total school population from the rural area will be 264 in 1959 and 314 in 1964—requiring by the end of Stage II one additional elementary, one junior high, and one senior high classroom. Summarizing urban and rural requirements, we get the following estimated demand:

	Elementary	Jr. High	Sr. High	Total Additional Classrooms
Stage I, 1959	8½	3	2	13½
Stage II, 1964	2	1	1	4
TOTAL	10½	4	3	17½

Part of this future demand will be met by the facilities of the new eight-classroom elementary school—of which three rooms are to relieve present crowding and five are surplus. The remaining demand—five-and-one-half elementary and seven high—will have to be met by new construction.

The plan submits that new school sites in the town should represent a balance between local and Divisional needs—between, on the one hand, the need to locate schools close to the centre of natural residential units, present and future, of the town, and on the other, the need to maintain proximity to major all-weather roads, which provide a link with school bus routes to the rural areas.

With this general directive in mind the following table shows how the classroom demand in 1959 and 1964 can be satisfied by the school sites provided in the **Proposed Land Use Plan**. (See Table 13.)

TABLE 12—Demand for Classrooms—From Town Growth, 1954-64

Date	A. Pop.	B. Pop. Increase	C. School Pop. Increase	D. Elem. Incr. Pupils	E. Elem. Incr. Clsrms.	F. Jr. Hi. Incr. Pupils	G. Jr. Hi. Incr. Clsrms.	H. Sr. Hi. Incr. Pupils	I. Sr. Hi. Incr. Clsrms.	Total Clsrms.
Dec. 31/53	1350 (est.)									
Dec. 31/54	1933	583	105	68	2	23	1	14	½	3½
Dec. 31/55	3183	1250	225	146	5	50	1½	29	1	7½
Dec. 31/59	3519	336	60	39	1	13	0	8	0	1
Dec. 31/64	3939	420	76	49	1½	16	½	11	0	2
TOTAL		2589	466	302	9½	102	3	62	1½	14

SOURCE: Department of Education—**Annual Reports**.
Clover Bar School Division.

NOTE: C. based on average provincial ratio of pupils to population—18 to 100, or .56 school-age children per family of 3.7.

D. F. and H. based on the present grade composition of the town's school population—elementary 65%; Jr. Hi. 22%; Sr. Hi. 13%.

E. assumes an average of 30 pupils per class—the accepted North American ideal.

TABLE 13—TOTAL CLASSROOM DEMAND AND SUPPLY, 1959 AND 1964

Classroom Demand—Old and New					Classroom Supply—Old and New				
	STAGE I		STAGE II			STAGE I		STAGE II	
	Old	New	Old	New	SITE	Old	New	Old	New
Elementary	10	8½	18½	2	A	Demolish old brick 7-room elementary.		11	
						Convert 9-room high school to elementary - 9	Add to converted school - 2		
					B	8		8	2
Junior High	5	3	8	1	C		8	8	1
Senior High	4	2	6	1	C		6	6	1
	19 + 13½=32½		32½ + 4=36½			17 + 16=33		33 + 4=37	

The above "supply" suggestions are based, in part, upon discussions with the Superintendent of the Clover Bar School Division. The old elementary school, built in 1909, does not meet prevailing space and light standards; its elimination, since it is fully amortized, would not represent a financial loss. The proposed conversion of the existing high school to an elementary school is contingent upon an effective remodelling for elementary purposes. If these measures are taken and two additional classrooms are added to Site B, school requirements up to 1964 can be met by the acquisition of one additional site (Site C—approximately 12

acres), and by the erection on it of a 16-room, combined junior and senior high school. This high school site would be both central to the emerging distribution of local population, and conveniently accessible by main road to highways and bus routes. The provision of 11 out of 19 elementary classrooms on Site A in Stage I reflects the present preponderance of elementary pupils north of the track. After 1959, with the filling in of the subdivided areas, demand for the use of Sites A and B will be about equal, and the plan makes corresponding adjustments.

COMMERCIAL LAND

Land use study of the central business area indicates certain patterns in the grouping of businesses of similar nature, and considerable amounts of vacant land. To enable the commercial area to function efficiently, three groups of land use, or zones, are proposed.

- 1. Commercial District, Class I.
Commercial enterprises and businesses frequented by public for daily shopping (retail stores), refreshment and entertainment, offices, public buildings and other high-density uses.
- 2. Commercial District, Class II.
Service businesses such as tradesmen, workshops, service and repair stations, wholesale warehousing, implements and building supplies, etc.
- 3. Commercial District, Class III.
Commercial areas serving and catering to the travelling public.

The main land uses give each of the classes special characteristics:

Class I: Central location; accessible to pedestrian and passenger car traffic; compact and continuous commercial frontage; elimination of uses creating nuisances, fire hazards or generating heavy truck traffic.

Class II: Uses supplying commercial district Class I, and all uses requiring large storage facilities (outdoors and indoors), and which generate truck traffic.

Class III: Accessibility to the main traffic arteries connecting the centre of the town with the provincial highways.

The estimated population of the town and its market area will be 6,691 or, an increase of 3,581 over the effective 1953 market area population. The land use plan for the **Central Business Area** is designed to accommodate this additional demand for business facilities.

Determination of the number of stores required to serve the population estimated for 1964 was arrived at by comparative study of several Alberta towns. Out of ten towns analyzed, four—with market conditions comparable to the "Fort" area—were selected for comparative study. They are Bonnyville, Brooks, Athabaska and Chipman. The resulting number of commercial establishments was cross-checked against the information obtained from the Federal Bureau of Statistics, U.S.A., and the Urban Land Institute. The following estimates were obtained:

Commercial Class I—Nineteen stores, five offices.

Commercial Class II—Nine stores, four service stations, one lumber yard.

Commercial Class III—One auto court.

Land requirements, due to the fact that vacant land in commercial areas is already subdivided, were calculated in terms of available commercial frontage, rather than in terms of area. This is compared with the commercial frontage provided in the accompanying plan for the **Central Business Area**. (See Table 14.)

CENTRAL BUSINESS AREA

TOWN OF FORT SASKATCHEWAN

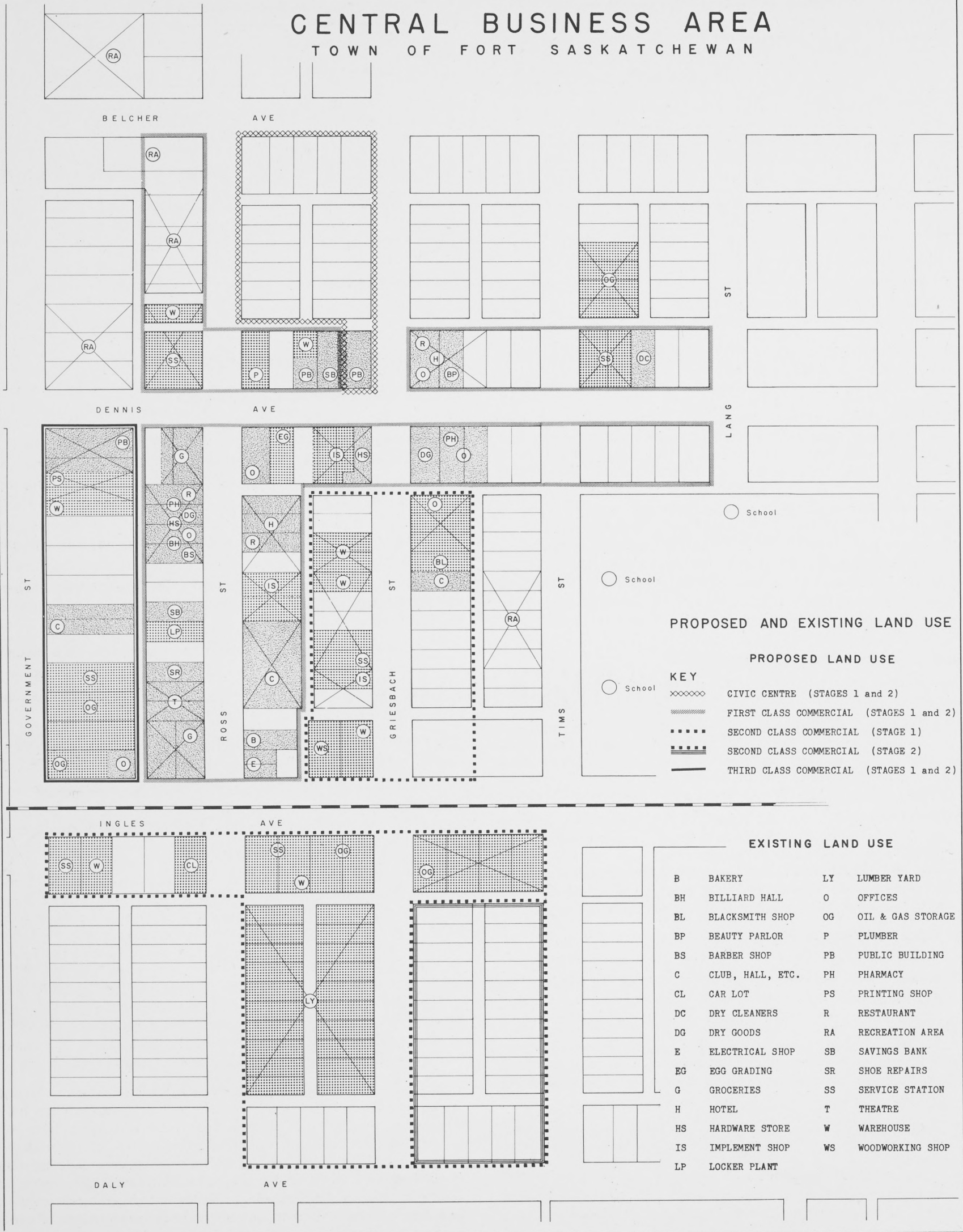


TABLE 14—Commercial Frontage—Demand and Supply, 1964					
Commercial Class	No. of New Stores	New Frontage Required	New Frontage Planned	Reserve	Deficit
I	19	570'	574'	4'	0
II	14	1270'	1771'	501'	0
III	1	290'	350'	60'	0
*In the areas zoned as Class II Commercial, 338 feet of frontage are occupied by the residences of poor quality, classified as nonconforming uses. Frontage reserve is thus reduced to 163 feet.					

Provision of the commercial frontage for the three classes of business at the locations presented in the plan, should, over the years, bring the following results:

1. Concentration of retail and office facilities, with continuous commercial frontage secured, and closely related to the administrative centre and residential areas.
2. Service and warehouse areas conveniently related to main traffic routes.
3. Concentration of public and administrative buildings close to the business heart of the town.

Central Area Parking

The efficient functioning of the central business area will depend to a large extent, on the availability of parking. The plan, therefore, attempts to establish present and future parking demand and to provide adequate space, on and off street, for this demand.

Parking Demand—Present and Future

In estimating the demand for parking space, the following standards were used:

- a. **Auditorium**, stadium, theatre, or other place of public assembly: one parking space for every 12 seats, based on maximum seating capacity.
- b. **Hotel**: one parking space for every three guest sleeping-rooms.
- c. **Restaurant**, soda fountain, lunch counter, beer parlor or other place of refreshment: one parking space for every eight seats, except when it is in a building which provides space, in which case the number of parking spaces already provided may be taken to be available as part of the number of spaces required to be provided by the restaurant or other place of refreshment.
- d. **Office Building**: One parking space for every 400 square feet of office floor space.
- e. **Stores**: One parking space for every 150 square feet of store floor area, which area shall include the total floor area of any rooms normally frequented by the public but not the area of any other rooms.
- f. **Industrial or Manufacturing Establishment**: One parking space for each 400 square feet of gross floor area or for every five workers, whichever is the lesser.

The demand for parking space generated by the existing business establishments - - - - -	202 cars
Anticipated increase in 1964 - - - - -	164 cars
Total - - - - -	366 cars

Parking Supply—Present and Future

Total amount of parking provided within the proposed **Central Business Area Plan** will amount to:

On-street parking - - - - -	254 cars
Off-street parking - - - - -	176 cars
Total parking space - - - - -	430 cars

To arrive at the above figure the following standards were used:

22' space for each car - - -	parallel parking
8' centre to centre - - - - -	diagonal parking
15' depth - - - - -	diagonal parking

Frontages Excluded

- 15' from intersecting street lines.
- 8' on each side of street and lane intersection.
- 15' on each side of fire hydrant.

Balance of Parking Supply and Demand

Fully developed parking capacity by 1964 - - -	430 cars
Demand by 1964 - - - - -	366 cars
Parking Reserve - - - - -	64 cars

Measures for Achieving Balance Between Parking Demand and Supply

To solve present parking difficulties and provide for the anticipated increase in demand for parking space, the plan suggests the following measures:

1. Convert the tennis court site into a parking lot, with an estimated parking capacity of 75 cars.
2. Redevelop the town centre according to the proposed plan—resulting parking capacity will be 78 cars.
3. Develop the new portion of commercial area (present curling and hockey rink site)—resulting parking will be 23 cars.
4. Provide for parallel on-street parking and eliminate present diagonal parking.

Local Commercial

Potential population in the residential areas south of the C.N.R. railway line would indicate the necessity for local shopping facilities. Residential population capacity of Ross Creek subdivision is 1,700. Proximity to the central commercial area makes it difficult to assess the ultimate need for local shopping within the subdivision. To meet the demand when and if it occurs, an area of 10,000 square feet should be reserved, providing adequate space for one grocery store, one drug store and off-street parking for ten cars. The location that would least interrupt the residential character of the subdivision will be the westerly part of the apartment site facing Daly Avenue.

Additional residential capacity, south of the railway and to the east of Government Road amounts to 1,500 people, when fully developed. As this area is at a considerable distance from the central business area and separated from the rest of the town by major roads, local shopping facilities should be provided. An area of one-half acre adjoining the proposed high school site should be reserved. This land reserve would accommodate: two grocery stores, one drug store, one barber, one shoemaker; and provide off-street parking for 15 cars.

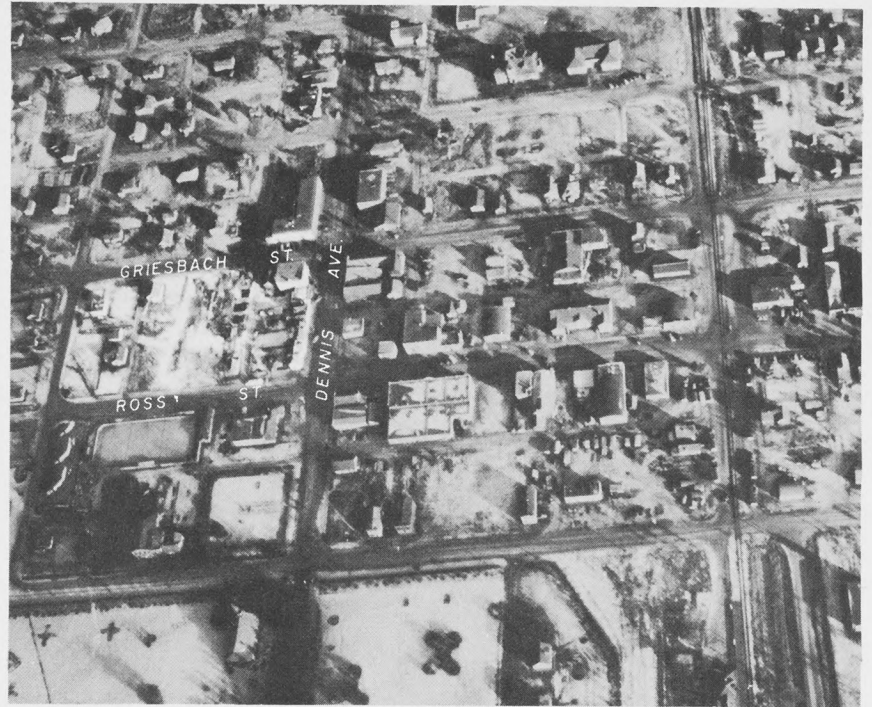
CIVIC CENTRE

Selection of the site for public buildings, and related activities, was based on the following principles:

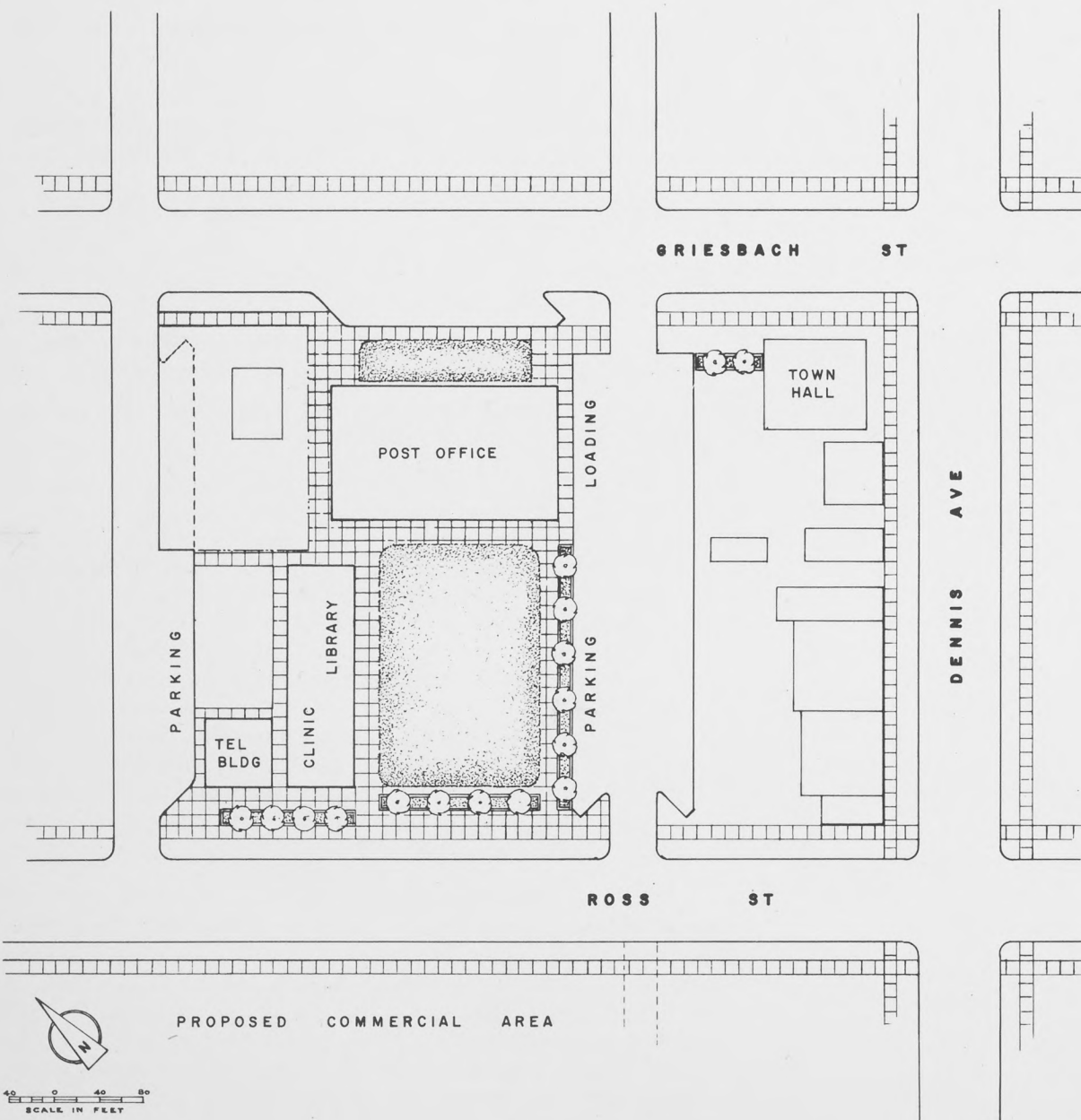
1. The main functions—town hall, post office, library, clinic, public utility building, etc.—should be concentrated on a single site and not scattered on separate sites throughout the town.

This is necessary

- (a) for the convenience of the public who should be able to send a parcel, pay their taxes and visit the library without annoyance, and without loss of time, and
 - (b) because the concentration of public buildings provides an opportunity by skillful grouping, for creating an environment which both expresses, and in turn, inspires, civic morale.
2. Location should be close to the established business centre, so that shopping and town affairs can be attended to together, without special trips for each.
 3. The land, if possible, should be town-owned to avoid the acquisition, at the taxpayer's expense, of high-priced land.
 4. The site should be large enough to provide for adequate parking, and for enough open space to properly set off freestanding buildings, and to give the whole a park-like setting.



A bird's-eye view of the civic centre area.



The accompanying aerial photograph shows the selected site, just north of the town office and Dennis Avenue, between Ross (Main) and Griesbach Streets. It is by no means ideal, but, as the sketch plan reveals, all the main conditions are in some degree satisfied. The sites for the post office, utility building and clinic-library are town-owned. Open space, planting and parking areas are integral parts of the design. Buildings are placed on the north and east side of the lawn for the best access to sunlight, both for buildings and the enclosed open space.

Realization of the Civic Centre plan depends finally on the acquisition of some private land for open space, parking and additional buildings, and the prevention of further nonconforming uses on private lots in the Civic Centre zone (see **Central Business Area**). This can best be accomplished by a development scheme bylaw, which empowers Council

- (a) to "specify the manner in which any particular area of land is to be subdivided and prohibit buildings and works which would interfere with the carrying out of the development scheme,"
- (b) to reserve land for future acquisition, and
- (c) to acquire land for the purpose of the development scheme, by expropriation, if necessary.

INDUSTRIAL LAND

How much industrial land should be reserved in the plan? This is a difficult question which cannot be precisely answered. The analysis of the town's industrial base has revealed a promising industrial potential, but no one can tell "how much industry and when?" The plan, therefore, does not go beyond the steps already taken by private industry, itself, and the Town of Fort Saskatchewan.

The Sherritt-Gordon Company holds a site of about 800 acres (see **Target Plan Map**) of which some 55 A. are used for its plant. The remainder represents a large industrial area, which is suitable for heavy industry—that is, the type of industry that produces a nuisance, or health hazard in the form of smoke, dust, odor, noxious gases, and industrial wastes.

The position of the land east of the town assures disposal of wastes into the river (after treatment) downstream from the town's future water intake; and dominant southern and northwestern winds will blow air-borne hazards away from the residential areas. Proximity to the C.N.R. main line is an additional advantage.

The light (or non-noxious) industrial area shown in the **Proposed Land Use Plan** is approximately 14 acres—11 of which are town-owned. Stage I land has been replotted, under the supervision of the Interim Development Board, in a form suitable for industrial development, and may be conveniently serviced by a rail spur as indicated in the **Proposed Land Use Plan**. Its location is ideal for light, consumer-goods industries, and for machine shops and supply warehouses, serving heavy industry. Town-ownership assures a moderate land price in the interest of attracting industrial assessment. The road plan provides a truck route, connecting the light industrial zone with the town centre to the north, and with the heavy industrial zone to the east. Road Section D-D (see Road System) proposes a 20-foot planted separating strip as a buffer feature between the industrial zone and the Ross Creek residential subdivision to the south. Provision for the required 90-foot right-of-way has been made in part by Interim Development Board action, that is, by reservation at subdivision (summer '53) of an additional 24 feet for Daly Avenue. There remains the problem of establishing the necessary 90-foot right-of-way on the north side of Daly Avenue from Tims Street to Government Road—by suitable setbacks, acquisition, or a combination of these.

Balance between the major land-use zones is an essential feature of a good town plan. This means that enough residential land should be provided to absorb all the families of all the employees who work in the established industrial zones. We can estimate the potential demand represented by the industrial land in the following manner:

Light Industrial Zone

A. Worker to Land Density	21 industrial employees per acre of industrial land.
B. Per Cent Male Householder	65%.
C. $A \times B$	= 14 industrial families per acre of industrial land.
D. Number of acres within zone	14 A.
E. $C \times D$	= 196 industrial families arising from the full use of the zone.
F. Average Density of residential development	5 families per acre.
G. $E \div F$	= 39 A. of residential land are required to absorb the families of all the employees who work in the light industrial zone .

NOTE: A. and B. based on relationships prevailing in Edmonton's machine shop industry.

Heavy Industrial Zone

A. Worker to Land Density	.7 industrial employees per acre of industrial land.
B. Per Cent Male Heads of Families	69%.
C. $A \times B$	= .5 industrial families per acre of industrial land.
D. Number of acres within zone	800 A.
E. $C \times D$	= 400 industrial families arising from the full use of the zone.
F. Average Density of residential development	5 families per acre.
G. $E \div F$	= 80 A. of residential land are required to absorb the families of all the employees who work in the heavy industrial zone .

NOTE: A. and B. based on relationships prevailing in the Strathcona refinery area. Thus the full development of both zones would require $80 + 39 A. = 119$ acres of residential land.

This demand represents an industrial development much greater than is anticipated as a basis for the minimum population forecast. Since the Target Plan is based upon the "Fort" realizing its greatest industrial expectations, the ultimate balance of residential and industrial zones is provided in the Target Plan.

PARK AND RECREATION LAND

The main features of the park and recreation system, existing and proposed, are a riverside park where outdoor summer recreational facilities are concentrated; a centrally located site where indoor winter recreational facilities are concentrated; a central children's playground; a memorial park; a local playground; and a golf course reserve. Each is here described separately.

Riverside Park:

Site—On the river flats, includes an area of approximately 25 acres, 30' above the river level and separated from the rest of the town by steep and heavily wooded cliffs. Outstanding in scenic beauty, it has a fine view over the river on the old mission church. Existing River Avenue runs to the east paralleling the river bank and the development is proposed to take place between the road and the cliff.

Existing Use and Land Ownership—At present the area is undeveloped, mostly wooded, with open areas scattered throughout. There are two substandard shacks existing. With the exception of 1.3 acres, the remainder of the land is owned by the town.

Design Principles:

1. Full use of scenic and landscape possibilities of the river-side for summer recreation.
2. Preservation of wooded area and open character of the site.
3. Concentration of summer sport facilities.

Proposed Sport and Recreational Facilities:

- | | |
|---------------------------|--------------------|
| 1. Tennis | 4. Softball |
| 2. Swimming Pool | 5. Horseshoe Pitch |
| 3. Baseball | 6. Picnic Grounds |
| 7. Dance and Refreshments | |

Moving from west to east in the accompanying sketch plan, the park divides itself naturally into three groups. In the first group two standard tennis courts are proposed, with adjacent club-house and swimming pool. The proposed swimming pool is the 25-meter size, 82' 6" long and 30' wide, with five swimming lanes. Trees between the river and the pool should be preserved to form a windbreak against the northwest winds. Tennis court, swimming pool and club-house form the group closest to the central area of the town. Diagonal off-street parking for 25 cars is incorporated in the design.

Softball and hardball diamonds form the second group, situated on level and open ground with off-street parking facilities for 38 cars (diagonal parking). The design provides for a seating capacity of approximately 500 people for hardball and 350 people for softball bleachers. Hardball bleachers could be extended if needed. Playing field for softball is 200'. For the hardball field, the following dimensions are proposed: 60' from plate to backstop; 300' from plate to outfield. If required at a later date, the length of the field could be extended to 350'.

The third group is comprised of picnic grounds, horseshoe pitch, dance and refreshment. A wooded area will provide adequate shelter and scenic surroundings necessary for picnic grounds. Cooking stoves and rustic shelters should be constructed and limited clearing of the underbrush will suffice. An open-air dancing platform and refreshment stand are proposed for the open part of the area. Off-street parking for 75 cars is included in the design.

Winter Recreation:

Proposed redevelopment of the town's centre and the extension of the first-class commercial district create the problem of relocating the hockey and curling rinks. To relocate these two winter sport facilities, an alternate site is needed, easily approached from the other parts of the town, with ample provision for parking.

The area suggested is just west and north of school site C in the **Proposed Land Use Plan**. Access is provided from the western connecting road, and site contains approximately six acres.

The hockey arena is 220' by 165' with a regulation size sheet and seating capacity of approximately 1,500. The curling rink is 200' by 85', five sheets of ice 165' by 14' and attendance capacity of 250 persons. Dimensions and capacity of the buildings are optional. However, they are based on prevailing standards in Edmonton and other regional towns. Parking is calculated according to standards used for the central business area (see chapter dealing with parking), and there is an off-street parking lot for 185 cars.

Children's Playground:

It is comprised of Lots 16 to 26 inclusive, Block 11, along the eastern boundary of Tims Street. (See **Proposed Land Use Plan**.) Besides being a playground, it has the function of separating the school site from the second-class commercial district. At present there are such play facilities as sandbox, swings and seesaw, placed on five town-owned lots. This park is equipped and maintained by the local Lions' club.

Cenotaph:

An area comprised of three lots in the northeast corner of the junction between Government Street and Dennis Avenue is at present maintained as a memorial park.

Ross Creek Park:

Contains two acres of land, centrally located and connected by pedestrian paths to all parts of the Ross Creek subdivision. Design provides enough space for two tennis courts, softball diamond and community centre, or equivalent facilities.

Golf Course:

This area has approximately 70 acres, with Ross Creek meandering through it. The site has considerable scenic beauty, with steep banks of the creek, densely wooded and open areas alternating. At present the land is undeveloped; it is entirely town-owned. Besides being a potential golf course, this area serves as a buffer strip between residential development and Highway 15.

Parks as Buffer Strips

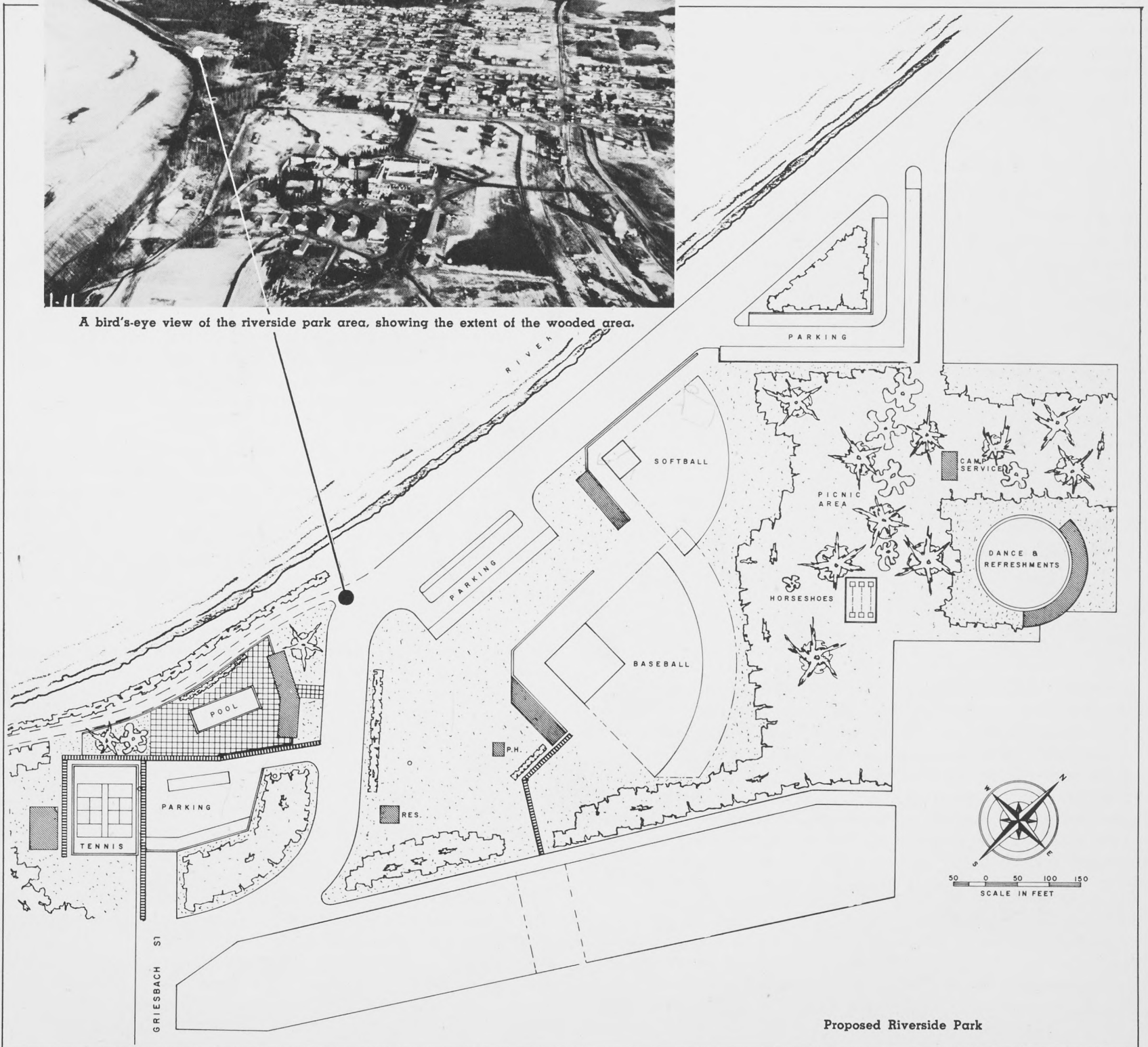
In addition to the "active" parks discussed, the **Proposed Land Use Plan** shows two "passive" parks on the eastern limits of the town. These are the parts of Ross Creek which fall within the town; they are wooded and topographically unsuitable for development. The plan proposes that Town Council take advantage of these natural park areas and maintain them in their present state as buffer strips between heavy industry and residential areas. That part of Ross Creek which falls outside the town limits could perform the same function by the provision of an adequate building set back from the western limit of the heavy industrial zone.



A bird's-eye view of the riverside park area, showing the extent of the wooded area.

Left: A fine view over the river of the old mission church.

Right: The approach road winds gently through a wooded area.



Proposed Riverside Park

ROAD SYSTEM

Roads around and within the town may be classified, according to their functions, into four groups.

1. **Highways**—function: through traffic from Edmonton to Eastern Alberta and Saskatchewan; local traffic from Edmonton to town and inter-industrial traffic; local traffic from the surrounding agricultural region to the town.
2. **Connecting Roads**—function: funneling traffic from highways into town; bringing traffic from industries into town.
3. **Major Internal Roads**—function: connecting major parts of the town; serving central business and light industrial areas.
4. **Minor Internal Roads**—residential and commercial—function: serving residential neighborhoods and connecting residences with schools and local shopping.

Problems and Solutions

1. HIGHWAYS

a. Highway 15—River crossing

Problem: The study of the town's economic region shows how the inadequate river crossing limits the market area north and northwest of the river. The present bridge is too narrow, hazardous, and acts as a barrier to truck and passenger traffic.

Solution: Considering the fact that the approaches are existing the plan proposes the widening of the old bridge, or the construction of a new bridge parallel and adjacent to the old one.

b. The junction between Highways 15 and 55

Problem: Two main streams of traffic meet at an intersection, where the main flow of Edmonton-originating traffic will concentrate.

Solution: Adequate land should be reserved now by means of a building setback for a rotary intersection at this point. In order to cause minimum slowdown in through traffic, the radius of the central island should be 215'. The resulting rotary speed will be 35 m.p.h. Rotary lane should be 36'.

c. Junction between Highway 15 and the eastern connecting road:

Problem: These roads meet at an acute angle, causing poor visibility for eastbound traffic entering the highway.

Solution: The plan proposes that this intersection be controlled by a stop sign on the connecting road.

2. CONNECTING ROADS

a. Western connecting roads

Problem: Traffic using the connecting road terminates at Government Street, where it meets another main stream of traffic before it turns, diagonally, and negotiates the level crossing. As the town grows and traffic from Edmonton increases, pressure on this junction will increase, and with it the accident hazard.

Solution: To relieve the pressure on the level-crossing intersection, the plan proposes to separate eastbound traffic according to function and destination. The **Proposed Road System** shows two alternative western connections—one, adhering to the present route with the diagonal eliminated, provides direct access to light and heavy industrial areas via Ingles Avenue and the proposed eastern link to Dennis Avenue; and the other, crossing the track (on the most westerly registered crossing) and paralleling the railway on the existing north-side right-of-way, provides direct access to the heart of the town. Directional signs will help to separate trucks from cars. The plan proposes road sections A-A and B-B, in the manner indicated in the **Proposed Road System**.

b. Government Street

Problem: Existing land use makes it necessary for this street to accommodate both through and local traffic.

Solution: The proposed road section (C-C) is designed with an eye to serving the two functions of connecting road and residential street. A 72-foot right-of-way, as proposed, would provide for two 12-foot traffic lanes, parking lanes, boulevards wide enough for tree-planting, and five-foot sidewalks on each side of the street. The plan proposes the closing of Ingles Avenue, north of the railway, between Government and Ross Streets—to prevent the diagonal crossing of Government Street by traffic emerging from the proposed western connection, north of the railway. Alternatively, that portion of Ingles Avenue could be declared "one-way," from east to west.

c. Eastern connecting road

Problem: The road is not wide enough for its purpose, and traffic flow is affected by one junction and a level crossing.

Solution: The plan proposes that the road be widened and constructed according to the road section A-A (see drawings), that a stop sign be established at the Sherritt-Gordon road, and that the level crossing be controlled by automatic stop lights.

3. MAJOR INTERNAL ROADS

a. **Dennis Avenue**, connecting eastern and western entrances to the town.

Problem: A mixture of local business, local residential and through traffic.

Solution: Between Government Street and Lang Street, the business part, the plan proposes road section 1-1 (see drawings)—providing for three 12-foot traffic lanes, parking on both sides, and 8-foot sidewalks; from Lang Street to the eastern town limits, road section F-F is proposed (with parking eliminated)—providing for three 12-foot traffic lanes, no parking, tree-planted boulevards (using present trees), and a 5-foot sidewalk on each side.

b. **River Avenue and part of Griesbach Street**, connecting river-side recreational area with the town's centre.

Problem: To provide adequate travelling width, and to effectively link the park road with the major east-west roads.

Solution: The plan proposes the following road sections: River Avenue from town limits to Chalmers Avenue—Section H-H; Griesbach Street from Chalmers Avenue to Dennis Avenue—Section F-F

(with parking eliminated), with the exception of that portion of the street adjoining the proposed Civic Centre where it should conform to the proposed layout (see Civic Centre sketch). Main road access to the park road is provided by Griesbach and Government Streets and Dennis Avenue.

c. **The truck route system:** serving commercial, warehousing and light industrial areas.

Problems: To prevent the movement of truck traffic through residential areas and the first-class commercial area (with the exception of service traffic), and to conveniently link commercial, warehousing and light industrial areas with the connecting roads. (See **Proposed Road System**.)

Solution: The plan proposes a truck route system which includes the following roads and sections:

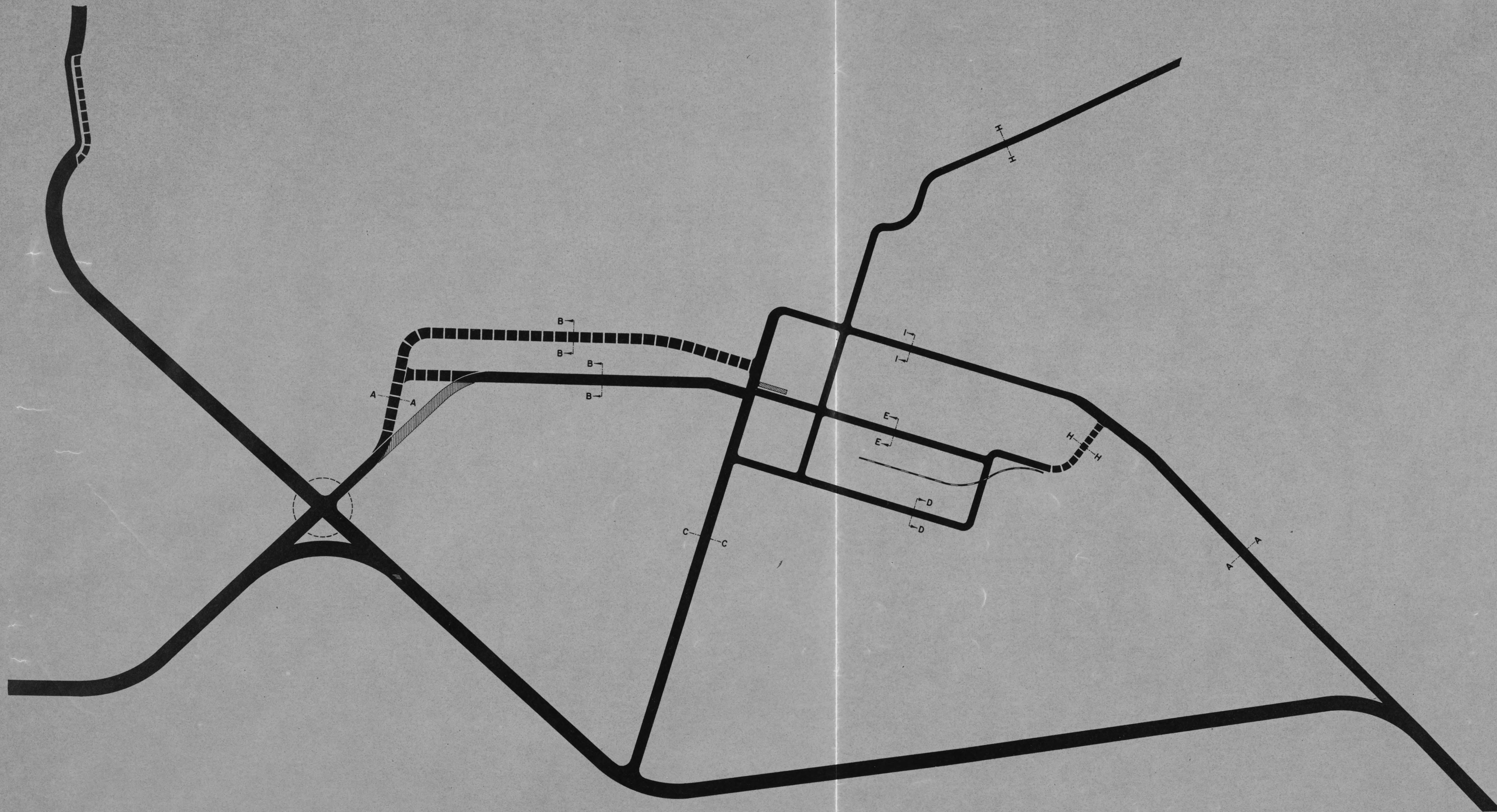
Daly Avenue from Government Street to Tofield Street—Section D-D

Tofield Street from Daly to Ingles Avenue—Section H-H

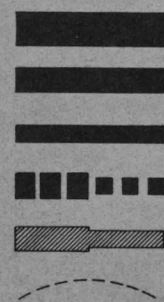
Proposed road link between Ingles Avenue and the eastern connecting road—Section H-H

Ingles Avenue from Tofield Street to Griesbach Street—Section E-E

Griesbach Street from Daly Avenue to Dennis Avenue—Section I-I



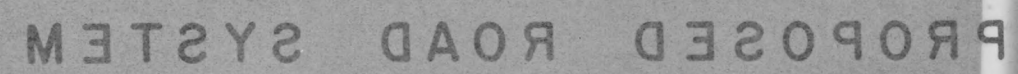
PROPOSED ROAD SYSTEM



- HIGHWAYS
- CONNECTING ROADS
- MAJOR INTERNAL ROADS
- PROPOSED ROADS
- ROADS CLOSED
- ROTARY SET-BACK

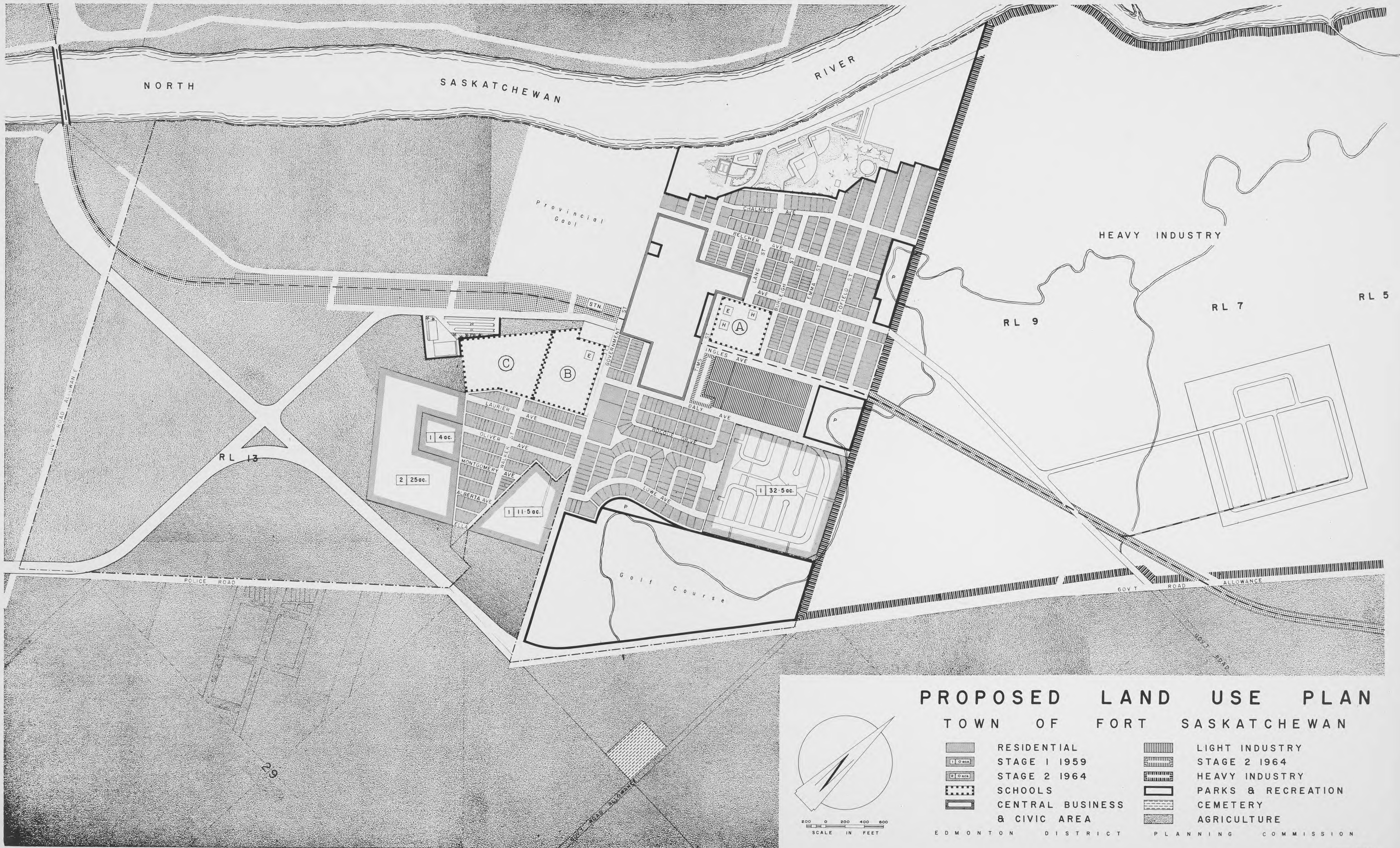
NOTE For proposed road sections AA,BB etc. see text.

1/2 7001



ROTARY SET - BACK

NOTE For proposed road sections AA-BB etc. see text.



4. MINOR INTERNAL ROADS—residential and commercial

Problem: To maintain these roads for their essential purposes, without intrusion of any form of through traffic.

Solution: Protection of this class of road is the by-product of an effective over-all road system, in which the main streams of traffic are channeled, by differentiation in road design and by directional signs, on to the highways, connecting roads and major internal roads. The following road sections are proposed on the assumption that through traffic will be effectively eliminated:

Residential streets, with 66-foot right-of-way—Section F-F

Residential loops, of the type provided in the Ross Creek area—Section G-G

Low Avenue, Ross Creek subdivision—Section J-J

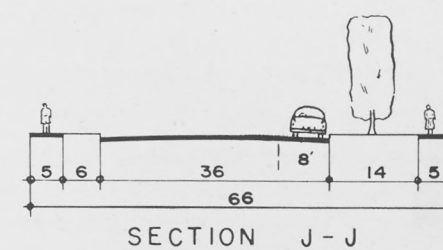
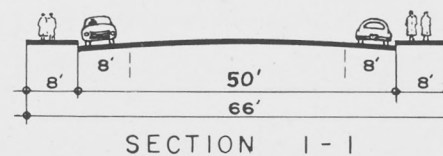
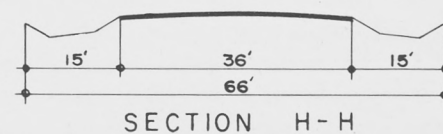
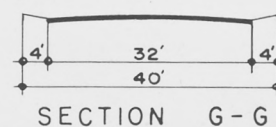
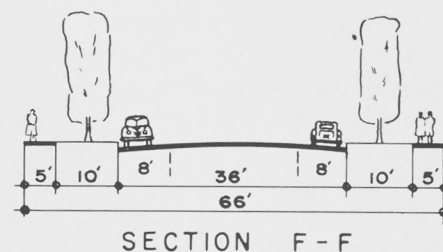
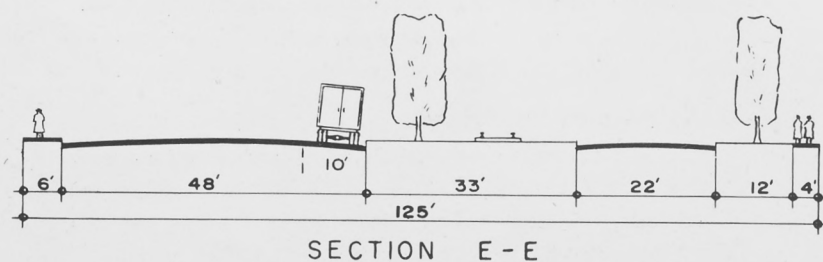
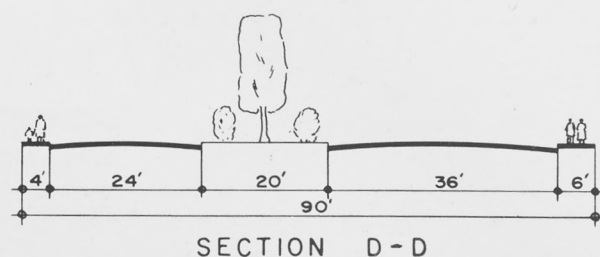
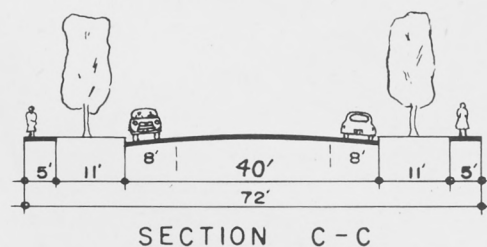
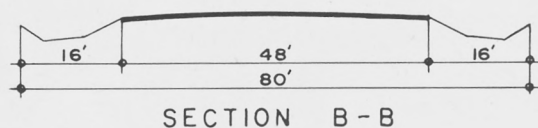
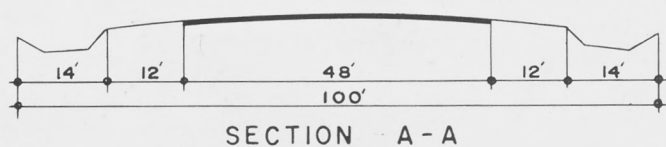
Ross Street, from Ingles to Belcher—Section I-I

If the various parts of the **Proposed Road System** are carried out in the manner suggested, the journey from home to work and to shopping will be improved, contacts with highways will be safer and more convenient, and the children in residential areas will be able to play in greater safety, unmenaced by fast-moving traffic.



The existing bridge has a narrow, hazardous approach.

PROPOSED ROAD SECTIONS



THE TARGET PLAN

The population study has established that the Fort Saskatchewan area will have to absorb by 1964, an additional population (above the forecast figure) of 10,000—if the town is to absorb its share of the region's growth potential. In fact, the **Outline General Plan** for the metropolitan area of Edmonton depends upon this.

RESIDENTIAL LAND

How much residential land will be required?

In estimating the land required for the target population an over-all gross density (ratio of people to land for houses, streets, local parks, school, etc.) of 15 people to the acre will be assumed. Thus 10,000 people will need 666 acres.

Where shall residential land be reserved?

The **Target Plan** shows the location of the residential reserve. It is south of Highway 15, bounded on the west by Highway 55, the new south-side Edmonton connection, and on the east by Ross Creek. Selection of this area was based primarily on the following considerations:

Favorable Topography—Land is suitable for housing development, with slopes ranging from undulating (2-4%) to gently rolling (4-8%). There are two small poorly drained areas (see Topography Map).

Convenience and Economy of Sewer Servicing—The land falls to the northeast, toward Ross Creek, making the Creek Valley an ideal drainage channel to the River. A trunk line built on its banks and outfalling to a disposal plant at the creek mouth would serve the land on either side of the creek. The Town's engineering consultants have indicated that this could provide the basis of a reorganized town system with all the sewage outfalling to the relocated disposal plant.

Access to Connecting Road—If the target population is reached, the urban area will extend south of Highway 15. The land east and west of the Creek is equal from the viewpoint of topography and servicing, but the selected area west of the Creek is more accessible to the facilities of the town centre. A glance at the **Target Plan Map** will show that the residential reserve could be directly linked with the town by means of the two main approaches; while the alternative area to the east is blocked from direct access by the golf course, the heavy industrial area and the railway.

INDUSTRIAL LAND

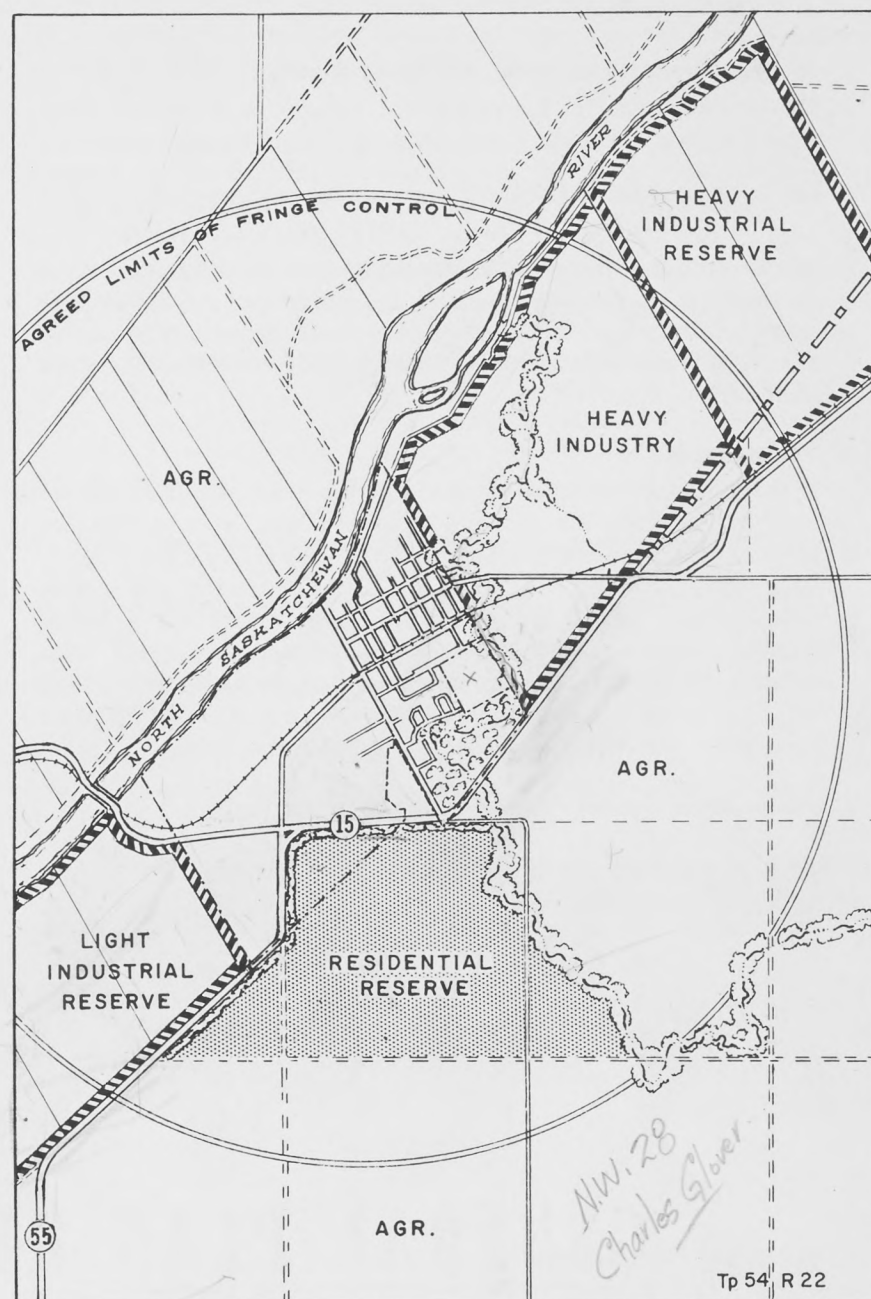
Reserves of industrial land are indicated on the accompanying map. The heavy industrial reserve is a logical extension of the area established by the refinery, and its downstream, downwind, close-to-rail position is important for the same reasons.

The light industrial reserve occupies the river lot land west of the built-up area. It is level, well-drained, serviceable with rail by means of a spur from the main line just east of the zone, and flanked on the south by a main highway. The area is designated "light" because of the need to prevent the pollution of river water by heavy industrial wastes (chemical, etc.) upstream from the town's future water intake. Any wastes discharged into the river from this area would require both primary and secondary treatment. If the development proved extensive, a sewer line (say along the river bank) connecting with the main system might prove economic.

The Road System

Development of both the residential and industrial parts of the **Target Plan** would create a need for adjustments in the road system, to assure a safe and efficient contact between the various functional parts of the whole community. For connecting the residential reserve and the town via Government Road, provision should be made now for reserving, by development control, a rotary radius at the intersection of Highway 15 and Government Road. To main-

TARGET PLAN 1964 TOWN OF FORT SASKATCHEWAN



tain a rotary speed of 35 m.p.h., a total radius of 251 feet will be required. It is not possible now, before determining the community design, to say exactly how and where new road connections will be made. The plan does assume, however, that where the residential reserve is adjacent to main highways there will be direct access to said highways only at a few points, specifically designed for the purpose.

The light industrial reserve would be linked to the centre by Highway 55. The settlement road, which encircles the river lots, is a 66-foot public right-of-way (now a barely passable wagon road) which provides a natural industrial road connecting the heavy industrial zone, via Dennis Avenue, with the heart of the town.

Problems in Carrying Out The Target Plan

Attainment of the **Target Plan** will involve a number of difficulties, of which the following are the most serious:

1. Acquisition of Jail Property

Some 320 acres in the residential reserve constitute part of the provincial jail farm. Should provincial authorities consider this land indispensable to the operation of the jail, development will be compelled to extend into less economic areas.

2. Crossing of Highway 15

When the target population is reached, there would be a good case for the relocation of Highway 15 to by-pass the ultimate limits of the built-up area. If, however, the highway remains in its present position, some means of safe pedestrian crossing would have to be devised. A pedestrian underpass at a point where the grade of Highway 15 is most favorable, would seem to be the best solution.

3. Distance from Commercial and Civic Centre

The southern limit of the residential reserve is about two miles from the stores and the town office. If the area develops on the neighborhood unit basis, as outlined in Part 3, a certain amount of decentralization of shopping will be achieved, and the problem of distance to the centre will be somewhat eased. The residential reserve, as outlined, contains about a hundred acres in addition to what is required for residential neighborhoods alone—so that land will be available for a community shopping centre, if it is required, and for an additional junior and/or senior high school site.

4. Water Supply

If the target population is reached, the town will require an estimated 424,000,000 gallons of water per year (assuming present Edmonton daily consumption of 82.8 gallons per capita). Well supplies would not be reliable for a demand of this magnitude. Council would be well advised to watch this problem closely, and to investigate the possibilities of treating river water for domestic purposes. Attainment of the target population will both create the need for water treatment and bring the plant investment within the financial capacity of the town.

5. Fringe Area Control

A promising community like Fort Saskatchewan runs a serious risk of attracting scattered, substandard development on the fringes of the built-up area. The pressure for fringe development,

comes both from within and without. From within the town, there may be certain people who, for economic or other reasons, seek to evade residential building standards, by locating outside town limits but within convenient commuting distance to shopping and to work. In the past, around other centres in the province, such development has been substandard, assuming the nature of a rural-urban slum. From without, there is the still latent invasion of metropolitan activities, motels, service stations, restaurants, drive-in theatres, trailer camps, etc.—all of which have a place, but if uncontrolled, can congest the vital highway approaches to the town.

The **Target Plan** depends on the necessary reserve areas remaining free from subdivision fragmentation and scattered developments—so that when they are ripe for development the land can be acquired and used with a minimum of delay and cost.

There are certain conditions prevailing within the Edmonton Planning District, which provide some assurance that the "Fort" can avoid the fate of other centres which have grown up outside the framework of regional planning. These are mainly:

1. The Building Code adopted by the Municipal District of Strathcona which raises standards almost to a par with those of the town.
2. The designation of Highways 15 and 55 as "limited access" highways by the Minister of Highways; and the corresponding limited access regulations adopted by the Edmonton District Planning Commission, which establish a two-mile interval between commercial access points, and
3. The "gentlemen's agreement" between the Town of Fort Saskatchewan and the Municipal Districts of Strathcona and Sturgeon, to prevent substandard residential development on the fringe of the town. The "control area" proposed by the town at a meeting with these municipalities (December 4, 1952) is outlined in the **Target Plan**. The whole success of the plan depends upon this agreement being converted, by further negotiation, into definite agricultural zones.

PART 11

GENERAL PLAN RECOMMENDATIONS

The analysis of conditions and problems for each class of land use has suggested the need for certain positive measures to achieve the most orderly, economic, and convenient development of the town. These measures, implied in the text, are here made specific in the form of definite recommendations for action by Council and its planning agency, the Interim Development Board. Most of the recommendations, with a few specified exceptions, call for some early action, and represent, in our minds, what a prudent Council ought to do, if it is to prepare adequately for the future. Progress would depend on financial capacity. Recommendations for each land-use class are presented separately. For full understanding, consult the text and the **Proposed Land Use Plan**.

RESIDENTIAL LAND

1. Establish residential zones in accordance with the **PROPOSED LAND USE PLAN**.
2. Permit residential development within these zones in accordance with the land-use regulations adopted by the Interim Develop-

ment Board, which establish amongst other things, the following minimum site areas:

TYPE OF HOUSING	MINIMUM SITE AREA
One-family dwellings	5,000 square feet for each unit.
Two-family dwellings	7,500 square feet for each two-family unit.
Apartments and row houses and other multiple-dwelling buildings.	5,000 square feet minimum plus 2,000 square feet for every dwelling unit.
A lodging or boarding house	1,000 square feet for each room.

3. Make preparations by land acquisition and/or annexation, by zoning, subdivision design and utility arrangements, for development of 48 acres residential land by 1959, and an additional 25 acres by 1964—in areas indicated in the **PROPOSED LAND USE PLAN**.
4. Make available serviced, town-owned land at cost, to builders of such low-rental projects (but not low-quality) as may be financed under the limited dividend and similar provisions of the **NATIONAL HOUSING ACT**.

5. Prepare subdivision plans for Stage I and Stage II residential reserves in advance of development, embodying the design principles outlined in Part 3 and illustrated in the ROSS CREEK REPLOTTING SCHEME; and approve only those subdivision applications which conform to these plans.
6. Consult with civil engineers on the most economic means of increasing the capacities of sewage disposal plant and sewer mains, both of which will, according to the forecast, be exceeded by 1956.
7. Maintain the building standards of the NATIONAL BUILDING CODE, or its equivalent, as adopted by the Interim Development Board.

NOTE: Proposals 1, 2, 5 and 7 are, in whole or in part, established town policy, by decisions of Council and its Development Board.

SCHOOL LAND

1. Propose to Clover Bar School Division the acquisition in 1954 of site C in the PROPOSED LAND USE PLAN as a combined Junior and Senior High School Site. (See Park and Recreation Land Proposals for new sports site.)

COMMERCIAL LAND

1. Establish in 1954, Class I, II, and III Commercial Zones in accordance with the proposed land use for the CENTRAL BUSINESS AREA.
2. Permit commercial development within these zones in accordance with the land-use regulations adopted by the Interim Development Board.
3. Maintain the fire zone regulations adopted by the Interim Development Board, and prepare specific building standards for the central business area to be incorporated in a comprehensive town building code.
4. Central Area Parking
Convert the existing tennis court site into a parking lot. (See Recreation Land Proposals for new tennis court site.)
Implement the parking features of the CIVIC CENTRE PLAN.
Provide for parallel on-street parking only, and eliminate diagonal parking on Ross Street and Dennis Avenue.
Establish off-street parking regulations in accordance with the parking standards of Part 5, or their equivalent.
5. Provide for the following local shopping space south of the C.N.R. main line:
Stage I—Ross Creek subdivision—10,000 square feet on one of the apartment sites facing Daly Avenue.
Stage II—West of Government Road—one-half acre, embodied in the residential subdivision design and located near the proposed high school site (Site C).

NOTE: Proposals 1 and 3 are, in part, established town policy.

CIVIC CENTRE

1. Implement the CIVIC CENTRE PLAN by the preparation and adoption of a development scheme in accordance with Sections 74-80, TOWN AND RURAL PLANNING ACT, 1953.
 2. Make immediate preparations for landscaping, planting and parking on town-owned land within the Civic Centre, as indicated on the CIVIC CENTRE PLAN.
- NOTE: Civic Centre plan has been officially adopted.

INDUSTRIAL LAND

1. Maintain the light industrial zone, and propose to the M.D. of Strathcona that they establish the heavy industrial zone, outlined in the PROPOSED LAND USE PLAN.

2. Permit industrial development within the light industrial zone in accordance with the land-use and building regulations adopted by the Interim Development Board.

PARK AND RECREATION LAND

1. Establish a special committee of Council to devise the most economic and effective means of carrying out the plan for the RIVERSIDE PARK, including the relocation of the tennis court.
2. Acquire the six-acre winter recreation site proposed in the plan.
3. Take steps to relocate the hockey rink and the curling club to the proposed winter recreation site.
4. Discuss, with the M.D. of Strathcona, the possibility of providing a 650-foot building setback from the western boundary of the heavy industrial zone—which, in effect, will preserve Ross Creek as a natural park and provide a buffer between housing and heavy industry.

ROAD SYSTEM

1. Take immediate steps to implement or initiate the PROPOSED ROAD SYSTEM, with respect to highways, connecting roads, major internal roads, and residential streets, by the following:
 - a. Commence discussions with the Department of Highways on the problem of providing a second lane for the "Fort" bridge.
 - b. Establish at the junction of Highways 15 and 55, a 251-foot building setback (from the centre point of the intersection) for a future rotary.
 - c. Close approximately 850' (the diagonal part) of the western connecting road, and acquire approximately 800' for the proposed alignment of the western connecting road.
 - d. Close Ingles Avenue, north side of the railway from Ross Street to Government Street, or, alternatively, establish it as one-way from east to west.
 - e. Close the level crossings at Emma, Burleigh and Tims Streets.
 - f. Propose to the Sherritt-Gordon Company that a stop sign be placed on its private road at its junction with the eastern connecting road.
 - g. Propose to the Department of Highways that they apply to the Board of Transport Commissioners for automatic stop lights at the level crossing of the eastern connecting road.
 - h. Implement the road widenings, grading, planting and improvements suggested in the PROPOSED ROAD SECTIONS.

THE TARGET PLAN

1. Reserve, by agreement with the M.D. of Strathcona and by town action where appropriate, the residential and industrial lands outlined in the TARGET PLAN, 1964.
2. Reserve, by town action, and by agreement with the M.D. of Strathcona a 251-foot building setback (from the centre point of the intersection) for a rotary at the junction of Highway 15 and Government Road.
3. Propose to the M.D. of Strathcona and the M.D. of Sturgeon, that an agricultural zone be established within the "agreed limit of fringe control" (see TARGET PLAN, 1964) for all the lands falling within the municipality and not designated for development in the PROPOSED LAND USE PLAN.
4. Consult with Provincial Sanitary Engineer on problems of using and treating river water for the town's domestic water supply.



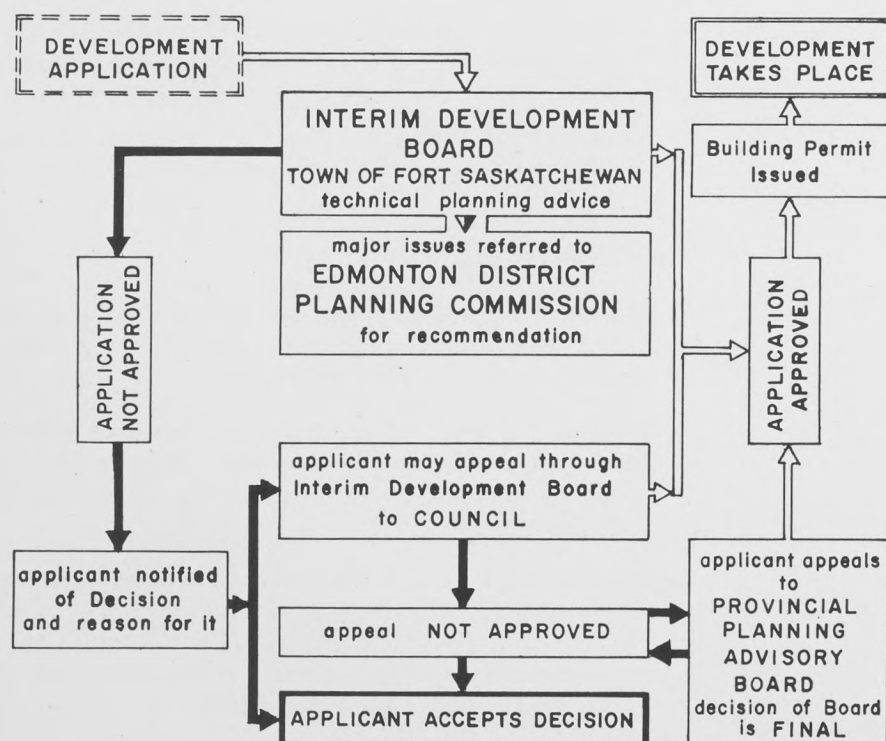
Interim Development Board, Town of Fort Saskatchewan. Left to right: I. Morris, Secretary; D. Mackie; S. Thorne; C. Hennig; M. Becker; G. Geall, Development Officer.

CARRYING OUT THE GENERAL PLAN

The **General Plan** recommendations of this report may be put into effect either

- by resolutions of the Interim Development Board, or
- by means of bylaws, passed by Council, adopting a general plan and implementing land-use proposals through zoning.

INTERIM DEVELOPMENT CONTROL



Interim development control, as it is practised in the town, is explained in the accompanying diagram. It was set up under the authority of the Minister of Municipal Affairs. It applies to the period between the inauguration of planning in the town and the final adoption of the general plan. Its purpose is to provide a means, in the interim, of guiding development in harmony with the general plan, gradually worked out by the local planning board and its technical advisers.

Completion of this general plan report does not mean that the interim period is automatically over. Council would be justified in maintaining the present system, if it believed that the outlines of the town's future development were not yet clear. The established method of development control is highly flexible. Basic changes in the plan can be made by resolution of the Development Board as soon as new and unforeseen factors emerge. The planning process is kept alive and responsive.

Considering that the town is at the very beginning of a promising industrial growth, the plan proposes that interim development control be continued. By the same token, when Council feels confident that the pattern of the town's growth has become clear, the appropriate general plan and zoning bylaws should be passed.

